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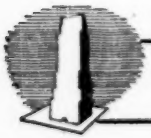

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WESLEY C. MITCHELL AS AN ECONOMIC THEORIST[1]

MILTON FRIEDMAN
University of Chicago

WESLEY C. MITCHELL is generally considered primarily an empirical scientist rather than a theorist. In my opinion, this judgment is valid; yet it can easily be misunderstood. The ultimate goal of science in any field is a theory—an integrated "explanation" of observed phenomena that can be used to make valid predictions about phenomena not yet observed. Many kinds of work can contribute to this ultimate goal and are essential for its attainment: the collection of observations about the phenomena in question; the organization and arrangement of observations and the extraction of empirical generalizations from them; the development of improved methods of measuring or analyzing observations; the formulation of partial or complete theories to integrate existing evidence.

In this sense, Wesley Mitchell's empirical work is itself a contribution to economic theory—and a contribution of the first magnitude. His work on prices and on business cycles provides an invaluable body of tested knowledge about these phenomena for the formulation of new theories and the testing of old theories; his work on the construction of index numbers and on statistical techniques for analyzing data on business cycles furthers the accumulation of additional tested knowledge. These contributions are so important and far-reaching that they have tended to obscure the significance of the work with which this paper is concerned—Mitchell's contribution to economic theory in the narrower sense of the explicit formulation of theory.

There is of course no sharp line between the empirical scientist and the theorist—we are dealing with a continuum, with mixtures in all proportions, not with a dichotomy. "The most reckless and treacherous of all theorists is he who professes to let facts and figures speak for themselves."[2] And, one might add, the

[1] I am deeply indebted to Dorothy S. Brady, Arthur F. Burns, Earl J. Hamilton, Lloyd A. Metzler, and George J. Stigler for helpful comments, suggestions, and criticisms. I owe a very different kind of debt to Wesley C. Mitchell for his part, as teacher, colleague, and friend, in my intellectual development in general, and in my understanding of his own scientific creed in particular.

[2] Alfred Marshall, "The Present Position of Economics" (1885), in *Memorials of Alfred Marshall*, ed. A. C. Pigou (London: Macmillan & Co., 1925), p. 168.

most reckless and treacherous of all empirical workers is he who formulates theories to explain observations that are the product of careless and inaccurate empirical work. A so-called "empirical generalization" may integrate many narrower generalizations; it may have great predictive power. A so-called "theory" may integrate little and have small predictive power. Yet there is a distinction worth drawing between work that is concerned primarily with the description of phenomena and the discovery of empirical regularities and work that is concerned primarily with the integration of empirical knowledge through the abstraction of supposedly essential features and their formulation into a coherent system of relationships.

The absence of a sharp line between empirical and theoretical work is particularly evident in Mitchell's work. His empirical work is throughout shaped by a thorough knowledge of existing theory and directed toward the construction of a better theory. It is always analytical, never aridly descriptive. His theoretical work is throughout interwoven with his empirical work and made a part of an "analytic description" of the phenomena under study.[3] Even in the most explicitly theoretical parts of his major writings—Part III of the 1913 *Business Cycles* and chapter ii of the 1927 *Business Cycles*[4]—Mitchell did not state baldly the bare bones of his theoretical structure; they are concealed in a summary of descriptive evidence and an elaboration of qualifications to the theoretical core or deviations from it.

Any attempt to make a thoroughgoing separation of Mitchell's theoretical from his empirical work would be artificial and would yield parts whose sum would be less than the whole from which they were extracted. In consequence, I have not attempted such a separation. Instead, with one important exception, I have selected for discussion a few theoretical formulations that seem to me important and that happen to be relatively easily separable without distortion (Sec. II). The one exception is Mitchell's theory of business cycles. This is clearly his most important theoretical contribution. At the same time, it is so deeply imbedded in a summary of the empirical characteristics of business cycles as to make any attempt at separation subject to serious error. Accordingly, I have adopted the device of displaying this contribution indirectly. Section III presents a business-cycle theory compounded entirely out of elements to be found in his work yet in a synthesis that I cannot confidently say he would have accepted as his own.

The form and the direction of Mitchell's work reflect in some measure his conception of economic theory and of the kind of work currently most important for its further development. They reflect, too, the kind of work in which his own comparative advantage was the greatest as well as his own standards of workmanship. These factors, discussed in Section I as a prelude to an examination of his theoretical formulations, do not of course provide a complete explanation; nothing short of an understanding of the whole man could do so.

I. FACTORS BEARING ON THE FORM AND DIRECTION OF MITCHELL'S WORK

"Economic theory" is often taken to be a label for an existing body of doctrine concerned primarily with the allocation of resources among alternative ends and

[3] Quoted phrase from the Preface to *Business Cycles* (Berkeley: University of California Press, 1913), p. vii.

[4] *Business Cycles: The Problem and Its Setting* (New York: National Bureau of Economic Research, 1927).

the division of the product among the cooperating resources, and based on the hypothesis that economic events can be "explained" and "predicted" by supposing men to behave as if they sought single-mindedly and successfully to pursue their own interests and as if their interests were predominantly to maximize the money income they could wring from a hostile environment. Mitchell consistently designated this concept "orthodox economic theory." He recognized its value as part of economic theory and made extensive use of it. Yet he was wholly convinced that orthodox economic theory was too narrow and that preoccupation with its improvement impeded progress in the area of what to him were the (currently) important problems.

To Mitchell, economic theory was more than orthodox economic theory. It was a set of hypotheses explaining economic behavior in all its leading manifestations, and he was himself almost exclusively concerned with a part of economic theory that was largely outside the main stream of economic thought when he began his scientific work and that even today is least developed and least satisfactory—the dynamic adjustment of the economic system as a whole. Because we know so little about this part of economic theory, we tend to neglect it in thinking about economic theory, to use the term to cover what we have, rather than what we ought to have. This circumstance, I think, partly accounts for the widespread illusion that Mitchell was antitheoretical, or at least not concerned with "economic theory"; for Mitchell's work was consistently and almost exclusively devoted to the development of a theory of economic change.

Mitchell's emphasis on "process," on dynamic change, is already clearly evident in his *A History of the Greenbacks*,[5] and more explicitly in a 1904 article on "The Real Issues in the Quantity-Theory Controversy,"[6] in which he listed as one of the real issues: "How does the quantity of money exert its effect on prices?" and went on to say, "Adherents of the quantity theory . . . have usually neglected to trace the process by which a change in the supply of money affects prices with the care required by the subject."[7]

Thorstein Veblen, who was at the University of Chicago during Mitchell's period there, doubtless had much to do with stimulating Mitchell's interest in process and dynamic change. One of Veblen's chief criticisms of "orthodox" economics was that it was not an "evolutionary science," that it did not deal with the problem of "cumulative change."

Mitchell's experience in working on the *History of the Greenbacks* and its sequel, *Gold, Prices, and Wages under the Greenback Standard*,[8] must have reinforced Veblen's teachings and given them vitality. For here he found that existing theory, while helpful in organizing material and in suggesting explanations, was unable to explain some of the most striking features of the price revolution during and after the Civil War. He found a rough correspondence between the premium on gold and the average level of prices—a correspondence that he attributed primarily to the influence of trade with foreign countries that were on a gold standard. But what explained the behavior of the premium on gold? Its broad movements might conceivably be explained by changes in the quantity of

[5] Chicago: University of Chicago Press, 1903.

[6] *Journal of Political Economy*, XII (June, 1904), 403–8.

[7] *Ibid.*, p. 407.

[8] Berkeley: The University Press, 1908.

money—though Mitchell was unable to satisfy himself about even this point because of the absence of reasonably satisfactory data on the quantity of money. But it was clear that detailed movements could not be so explained—they were too rapid and violent and corresponded too closely with the changing fortunes of the Northern armies. The proximate cause was better described by saying that "the quantity of the greenbacks influenced their specie value rather by affecting the credit of the government than by altering the volume of the circulating medium."[9] But this was no final answer: "The problems remain to be discussed," he wrote in the final chapter of *Gold, Prices, and Wages*, "What factors controlled the premium on gold? Were the fluctuations both of the premium and of prices a consequence of some common cause, such as the changes in the quantity of money?"[10]

Mitchell also found systematic and important differences in the behavior of different classes of prices. Wholesale prices tended to change more sluggishly and later than the premium on gold, retail prices than wholesale, cost of living than retail prices, and wages than the cost of living. Mitchell found a proximate explanation of these differences in the organization of the markets, the growing importance of "friction" and "custom" as one moved from the market for gold to the wholesale market, the retail market, the housing market, and the market for labor—factors that orthodox price theory treated as peripheral. The explanation of these phenomena required an understanding of process, of different capacities for adaptation; it could not be wrung from a theory of comparative statics. So the importance of the phenomena left unexplained by the theories he had studied must have impressed him forcibly and made him receptive to Veblen's message. The quantity theory of money and orthodox price theory explain a wide range of important phenomena, but they are incomplete and need to be extended and revised to explain other phenomena equally important and not less puzzling.

Mitchell might have approached his objective of broadening economic theory by accepting the phenomena themselves as largely known and devoting his efforts to the excogitation of plausible hypotheses that would account for them. And Arthur F. Burns tells us that, in fact, Mitchell started on this route by beginning in 1907 "a theoretical treatise on money—a study in which he at first saw no place for statistics."[11] But in a little over a year he had left it and turned to the kind of work that was to dominate his scientific activities—the large-scale collection, organization, and interpretation of empirical evidence on business cycles, whether from historical research, contemporary judgments, or quantitative records.

This shift and Mitchell's continued emphasis on providing an "analytic description"[12] of economic phenomena reflect in part his judgment about the kind of work that would contribute most to the development of a satisfactory theory of economic change. In concluding a summary of the existing theories of business cycles in his 1913 *Business Cycles*, Mitchell wrote:

> One seeking to understand the recurrent ebb and flow of economic activity characteristic of the present day finds these numerous explanations both suggestive and perplexing. All are

[9] *History of the Greenbacks*, p. 208.

[10] P. 272.

[11] *Wesley Mitchell and the National Bureau: 29th Annual Report of the National Bureau of Economic Research* (New York: National Bureau of Economic Research, 1949), p. 21.

[12] Preface to *Business Cycles* (1913), p. vii.

plausible, but which is valid? None necessarily excludes all the others, but which is the most important? Each may account for certain phenomena; does any one account for all the phenomena? Or can these rival explanations be combined in such a fashion as to make a consistent theory which is wholly adequate? . . . It is by study of the facts which they purport to interpret that the theories must be tested [p. 19].

If I understand Mitchell rightly, he was saying something like this: Granted that our objective is a theory of economic change that will explain observed phenomena and correctly predict phenomena not yet observed; granted, too, that, when attained, such a theory will abstract essential elements from the complex of economic phenomena and in that sense will be "unrealistic"; it does not follow that the best way to derive such a theory is to proceed directly to its formulation. In the study of any class of phenomena, it is necessary first to examine the phenomena themselves, to describe them, and to find empirical regularities, in order to provide a basis for generalization and abstraction; and at this stage the orderly organization of empirical data is more important than the elaboration and refinement of abstract hypotheses. In his judgment the theory of economic change was at this stage; yet he felt that economists were treating it as if it were not, as if the phenomena were already sufficiently well known to provide a basis for generalization. In consequence, they were excogitating numerous theories "both suggestive and perplexing." He would be better occupied, he felt, in using these theories to suggest the empirical phenomena to be investigated, and then devoting the major part of his attention to describing these phenomena, only afterward formulating a rationalization of them.

On the whole, I think, Mitchell's judgment about the state of the theory of economic change at the time he began his work was thoroughly sound. Indeed, if we are at a somewhat more advanced stage today, it is in no small measure because of his work in adding to the body of tested knowledge about economic change. And, even so, we still seem to know so little about the empirical phenomena to be explained by a theory of economic change that we cannot adequately choose between widely divergent theories. If Mitchell erred at all in his judgment, it was in occasionally applying it too broadly—to economic theory as a whole rather than to the theory of economic change alone. I do not think the same judgment is valid for orthodox relative price theory, as Mitchell recognized on occasion.[13]

Mitchell's emphasis on "analytic description" probably reflected also his own comparative advantage. His great genius was in an unparalleled capacity for bringing together an enormous mass of material, putting it into systematic form, and giving an orderly, lucid, and meaningful account of it. This capacity is demonstrated in every one of Mitchell's major works. Its finest and fullest expression is in the 1913 *Business Cycles*, particularly in Part II, whose 356 pages contain a brilliant presentation of "Statistical Data concerning the Business Cycles of 1890–1911 in the United States, England, France and Germany." Though his subsequent work would alone suffice to give him an unquestioned place in the front ranks of economists, none of it, in

[13] "The Rationality of Economic Activity," *Journal of Political Economy*, XVIII (1910), 215; "The Prospects of Economics," reprinted in Wesley C. Mitchell, *The Backward Art of Spending Money and Other Essays* (New York: McGraw-Hill Book Co., 1937), p. 371; "Lecture Notes on Types of Economic Theory" (a stenographic transcript by John Myers of lectures delivered in 1934–35, ed. J. M. Gould and A. M. Kelley) (New York: Augustus M. Kelley, 1949), I, 11–15 (mimeographed).

my view, rivals in quality or significance the 1913 volume. This volume treats the phenomenon that has come to occupy perhaps the major place in the work and strivings of economists. It describes this phenomenon with a completeness that has rarely if ever been equaled; and it presents hypotheses to explain the phenomenon that still provide the inspiration for much of the current work on business cycles. Its nice balance between breadth of conception and precision of detail is matched in none of Mitchell's other work, perhaps because of the narrowness of scope of his earlier work, the comprehensiveness of his later work.

Mitchell believed that economics could become a cumulative science only if each worker could build on what earlier workers had done, that there was no hope of constructing an adequate theory on a foundation of careless and inaccurate empirical work. So despite the magnitude of the task he undertook—the breath-taking variety of phenomena and evidence he considered relevant to his problem—he sought unceasingly for accuracy and exactness. A single example from the 1913 volume will illustrate the meticulous attention to detail that marks his work. While Mitchell was working on this book, A. Piatt Andrew published *Statistics for the United States, 1867–1909*, for the National Monetary Commission.[14] This volume contains a detailed and excellent presentation of monetary and banking statistics, compiled directly from official sources. Yet Mitchell was not content simply to take them over. He discovered that Andrew had not taken account of revisions in the estimated gold stock made by the Director of the Mint; so he corrected Andrew's figures to incorporate these revisions. He was dissatisfied with Andrew's estimates of the amount of money held by banks. Irving Fisher had independently made similar estimates, but new data had since become available. So he rejected both Andrew's and Fisher's estimates and proceeded to construct independent estimates of his own. But he did not neglect to compare his estimates with the others, to point out the reasons for the differences, and to adduce evidence to support the superiority of his procedures. Similarly, he was unwilling to accept Irving Fisher's earlier estimates of the volume of deposit currency in the United States, again because additional data had become available. So again he made his own estimates, carefully comparing them with Fisher's. The final figures he compiled were better than anything else then available, and at least some of them are probably superior to the figures contained in the most recent compilation of banking and monetary statistics.[15]

Mitchell's high standard of workmanship and meticulous attention to detail help to explain why in every field he touched—whether economic history, business cycles, prices, or statistical technique—his work has tended to become authoritative. His work stands up to exacting scrutiny; it does not fall to pieces as does much shoddy work that passes for scientific. I think it also helps to explain why his theoretical insights are so deeply imbedded in his descriptive work, so frequently qualified by his empirical instincts and knowledge. He could not put to one side phenomena he knew ex-

[14] Senate Doc. No. 570 (61st Cong., 2d sess. [Washington, D.C.: Government Printing Office, 1910]).

[15] In particular, the figures on currency in circulation in *Banking and Monetary Statistics* (Washington, D.C.: Board of Governors of the Federal Reserve System, 1943), p. 408, are identical with Andrew's, except for the addition of minor coin, and do not include the correction in the estimated gold stock made by the Director of the Mint.

isted, even in order to throw into sharp relief features he considered basic.

Even in his "Lecture Notes on Types of Economic Theory," recently made readily available in mimeographed form, Mitchell does not concern himself primarily with technical economic theory. Instead, he takes the development of economic theory as itself a process to be described, interpreted, and explained. Even here his emphasis on process, on "analytic description," is evident. In consequence, the "Lecture Notes," particularly Volume I, which ends with John Stuart Mill, are an absorbing essay in the sociology of knowledge organized about the great economists of the period much more than a critical examination of alternative theoretical formulations.

II. SOME OF MITCHELL'S THEORETICAL FORMULATIONS

a) The influence of "money" on economic practice and thinking.—To Mitchell, "money" was a symbol for a much broader range of problems than is ordinarily treated under that heading. It stood for the whole complex of modern pecuniary institutions, not for technical monetary and banking arrangements alone. His use of the word in this sense reflected one of the central hypotheses that emerged from his work—that the use of money was the dominant characteristic distinguishing modern systems of economic organization from earlier ones. "The money economy," he wrote, "is in fact one of the most potent institutions in our whole culture. In sober truth it stamps its pattern upon wayward human nature, makes us all react in standard ways to the standard stimuli it offers, and affects our very ideals of what is good, beautiful, and true."[16]

This hypothesis recurs repeatedly in Mitchell's writing. It is a leading theme of his 1910 article on "The Rationality of Economic Activity,"[17] the basis of his interpretation of current developments in economic theory in his 1916 article "The Role of Money in Economic Theory,"[18] and an important part of his interpretation of earlier classical writers in his "Lecture Notes." It is most completely formulated in one of his last papers, "The Role of Money in Economic History,"[19] a beautiful essay that summarizes the thoughts of a lifetime on "how monetary forms have infiltrated one human relation after another, and their effects upon men's practices and habits of thought."[20]

"The use of money," Mitchell argues, "gives society the technical machinery of exchange, the opportunity to combine personal freedom with orderly cooperation on a grand scale. . . . It is the foundation of that complex system of prices to which the individual must adjust his behavior in getting a living."[21] But while it enlarged man's freedom, it also required him to become

> more calculating, more self-reliant, and more provident. . . . Individuals who possessed superior aptitude for making money came to the fore in all walks of life. . . . The new leaders found many chances to exploit others and took advantage of them; but, broadly speaking, men who are trying to make money are the servants of consumers—that is, of the whole society. . . . In this sense, the money economy gradually put the task of making goods under the direction of men who provided most efficiently what solvent consumers wanted to buy, and whose continued

[16] "The Prospects of Economics," in *The Backward Art*, p. 371.

[17] *Journal of Political Economy*, XVIII (February and March, 1910), 97–113, 197–216.

[18] Reprinted in *The Backward Art*, pp. 149–76.

[19] *Journal of Economic History, Supplement*, "The Tasks of Economic History," 1944, pp. 61–67.

[20] *Ibid.*, p. 61.

[21] *The Backward Art*, pp. 170–71.

leadership depended on maintaining their efficiency.[22]

It thereby accelerated changes in methods of production and distribution of goods and in the character of production, but at the expense of exposing nations "to a novel set of dangers arising from the technical exigencies of monetary systems. . . . I think," Mitchell wrote, "money economy is responsible also for business cycles."[23]

Since money molds man's "objective behavior, it becomes a part of his subjective life, giving him a method and an instrument for the difficult task of assessing the relative importance of dissimilar goods in varying quantities, and affecting the interests in terms of which he makes his valuations."[24] In this way, men's minds become obsessed by monetary illusions. An objective counterpart is that "production in a money economy is directed toward wares that promise a profit to the makers, not toward goods that will be most beneficial to consumers, whatever that should be taken to mean. Money economy fosters inequality in the distribution of income, and where inequality is marked no one contends that what pays best is what the community needs most."[25] A subtler counterpart is that "we are prone to pay far more attention to the relatively few factors that influence our money incomes in a way we can readily trace than to the host of factors that influence our money expenditures,"[26] which, among other effects, makes us receptive to protectionist devices that promise to raise money incomes despite the losses they entail on the side of consumption.

Mitchell argues also that the use of money is a key to understanding both the development of orthodox economic theory and its range of usefulness.

Because it thus rationalizes economic life itself, the use of money lays the foundation for a rational theory of that life. Money may not be the root of *all* evil, but it is the root of economic science.[27]

It is the habit of mind begotten by the use of money that makes the pleasure-pain calculus plausible as an account of our own functioning. Thus the use of money lays the psychological basis for that philosophy of human behavior which Bentham and Mill, Marshall and Clark, represent. . . . Economic theory written from the private and acquisitive viewpoint becomes a system of pecuniary logic that exaggerates the importance of one institutional factor in behavior to the neglect of others.[28]

Pecuniary logic is such a momentous factor in the economic situation, that a clear working-out of theorems along its lines of logical development is illuminating.[29]

The assumption of economic rationality is not so much mistaken as inadequate. It applies to the work of the captains but not to the work of the rank and file in industry and business; it does not explain the activities of consumption; and it betrays the economist into neglect of his chief problem, [which is how economic rationality itself arose].[30]

A man who realizes that he is studying an institution keeps his work in historical perspective, even when he confines himself to analyzing the form that the institution has assumed at a particular stage of its evolution. By so doing he opens vistas enticing to future exploration . . . [and is] eager to profit by any light shed upon his problem by any branch of learning.[31]

[22] "The Role of Money in Economic History," *op. cit.*, p. 62.

[23] *Ibid.*, pp. 63–64.

[24] *The Backward Art*, p. 171.

[25] "The Role of Money in Economic History," *op. cit.*, pp. 63–64.

[26] *Ibid.*, p. 64.

[27] *The Backward Art*, p. 171.

[28] *Ibid.*, p. 306.

[29] "The Rationality of Economic Activity," *op. cit.*, p. 215.

[30] *Ibid.*, p. 201.

[31] *The Backward Art*, p. 256.

One need not agree with every detail of this sketch to recognize its value. Mitchell here offers a simple yet subtle and fruitful hypothesis to integrate a wide range of seemingly unrelated phenomena. In his celebrated article, "The Backward Art of Spending Money," published in 1912, Mitchell illustrated his general hypothesis by elaborating its bearing on consumption. The backwardness of the art of spending money, he argued, reflects both the failure and the success of the money economy in extending its sway over the household. Our retention of the family as the basic unit for spending money sets narrow limits to the standardization of function, the division of labor, and the extensive use of labor-saving machinery in consumption—the means whereby the money economy revolutionized production. In consequence, "housewives still face essentially the same problems of ways and means as did their colonial grandmothers."[32] But while the money economy failed to alter means fundamentally, it succeeded in shaping the ends of consumption in a way that is

> subversive of economical management. . . . The money economy forms in us the habit of extravagant expenditure for the unacknowledged purpose of impressing both ourselves and our neighbors with an adequate sense of our standing. . . . The housewife . . . must buy not only gratifications for the appetites and the aesthetic senses, but also social consideration and the pleasant consciousness of possessing it. The cost of the latter is an air of disregarding cost.[33]

Mitchell completes his explanation of the backwardness of the art of spending money by adding three other factors to these divergent effects of the development of the money economy: (1) the backwardness of "physiology and functional psychology," "the sciences of fundamental importance" for the art of spending money, by comparison with physics and chemistry, the most important sciences for industry;[34] (2) the absence of a common denominator like the dollar to value costs and gains; and (3) the indefiniteness of ultimate ends.

A more important application of Mitchell's broad hypothesis on the role of money, and something of a test of its validity, is contained in his discussion of the origin of business cycles. The three pages devoted to this subject in the 1913 *Business Cycles* are obviously a concentrated summary of a good deal of thought and study. His empirical generalization is that "business cycles are much later in appearing than economic, or even strictly financial crises. In England itself they seem not to have begun before the close of the eighteenth century. . . . In proportion as the Industrial Revolution and its concomitant changes in the organization of commerce and transportation spread to other countries, the latter began to develop the phenomena of business cycles already familiar in England." His hypothesis to explain this generalization is that "business cycles . . . make their appearance at that stage of economic history when the process of making and distributing goods is organized chiefly in the form of business enterprises conducted for profits."[35]

This subject receives somewhat fuller treatment in the 1927 volume. The empirical generalization is repeated, tested with more adequate data, and retained essentially unchanged. The hypothesis to explain the generalization is stated more fully and linked more closely to the broader hypothesis of which it is a part.

> Communities slowly become subject to recurrent alternations of prosperity and depression as a large proportion of the people begin to rely

[32] *Ibid.*, p. 5.

[33] *Ibid.*, pp. 15–16.

[34] *Ibid.*, p. 11.

[35] *Business Cycles* (1913), pp. 584–85.

upon making and spending money in a large proportion of their activities. . . . To suggest the differentiating features of that highly developed form of money economy within which business cycles occur . . . perhaps the combination "profits economy" or "business economy" is most suggestive and least misleading. . . . What seems to count in producing business cycles is the common practice of money-making and money-spending by the population as a whole, not merely by a limited class of business men.[36]

b) The quantity theory of money.—Mitchell was deeply interested in "money," not only in the broad sense in which we have just been using it, but also in the narrower sense of technical monetary and banking arrangements. His first published article was on the quantity theory of money—a none-too-well-considered attack on a rigid form of the theory.[37]

A later article, "The Real Issues in the Quantity Theory Controversy," published in 1904, is a much more satisfactory discussion of the same subject. In it he condemned his own earlier article and emphasized that one of the "real issues" was "how does the quantity of money exert its effect on prices."[38] This problem continued to interest him. On the one hand, the quantity theory of money even in its "orthodox formulation" that, " 'other things being equal, prices vary directly as the quantity of money in circulation' is both valid and important [for] the long-period relations between gold-supply and prices at wholesale."[39] On the other hand, the quantity of money could not, Mitchell thought, be the primary "active" factor in the short-period changes of prices dealt with in the theory of business cycles. Substantial changes in prices and productions occur during such periods despite small changes in the quantity of money. Yet the longer periods are composed of the shorter periods. How can it be that the apparently most important factor for the longer-run movements is quiescent during so large a part of the shorter-run movements which together comprise the longer movement?

His final resolution of this question is contained in a discussion in his 1927 *Business Cycles* on "The Monetary Mechanism" and in particular in a subsection on "The Quantity Theory and Business Cycles." None of this material appears in the 1913 volume. He writes here:

> Time . . . is of the utmost consequence in considering the relations between prices and "the quantity of money." Relations which hold in long periods do not hold in short ones. Nor are all short periods alike; what is true in certain phases of business cycles is not true in all phases. Yet most of the seemingly contradictory statements which fill the long controversy over this problem can be reconciled when put in their proper relation to time.[40]

The hypothesis that Mitchell presents to reconcile the dominance of the quantity of money in the long-period movement with its usual or frequent passiveness in short-period movements is that

> in depression, revival, moderate prosperity and and mild recessions, the effective limit upon . . . transactions [of businessmen] is set by commercial demand. . . . But in intense booms, the commercial demand may become so active that transactions reach the limit set by the monetary and banking systems. Over long periods of time, prices and the physical volume of trade have tended to expand up to these limits—not steadily, but in recurrent spurts of activity. And that fact has given changes in the annual output

[36] *Business Cycles* (1927), pp. 62–63. See also Arthur F. Burns and Wesley C. Mitchell, *Measuring Business Cycles* (New York: National Bureau of Economic Research, 1946), pp. 3, 5, and 113.

[37] "The Quantity Theory of the Value of Money," *Journal of Political Economy*, IV (March, 1896), 139–65. Mitchell was at the time an undergraduate at the University of Chicago.

[38] *Op. cit.*, p. 407.

[39] *Business Cycles* (1927), pp. 138–39.

[40] *Ibid.*, p. 138.

of gold a dominant influence upon the secular trends of wholesale prices.[41]

This analysis is intermingled with and grew out of a theoretical contribution of the first importance to the quantity theory of money—a contribution that, like most really important scientific discoveries, is obvious and almost trite, once it has been stated. This contribution consists in emphasizing that the elements in the quantity equation ($PT = MV + M'V'$) must be regarded as dated and that different dates must be attached to the various elements for the equation to be an identity.

> Of the payments ($MV + M'V'$) made today, the bulk are payments for goods transferred (T) some time ago, at prices (P) most of which were agreed upon still earlier; a considerable fraction are payments for goods transferred today at prices now agreed upon; a minute fraction are payments for goods which will be transferred later. . . . In other words, the day-by-day relations between $MV + M'V'$ and PT are indeterminate—the payments made today are most unlikely to equal the prices quoted today multiplied by the goods exchanged today.[42]

This difference in dating is unimportant, Mitchell says, for reasonably long intervals, or, stated differently, for static problems in which an equilibrium position is defined by the temporal stability of the variables. So in analysis of problems of position, the quantity theory can be used without paying special attention to the dating of the variables on which it centers attention. On the other hand, in the analysis of process rather than position, the dating of the variables is likely to be critically important; it is precisely the lags reflected in differences in dating that must be the central elements of a dynamic theory. As Mitchell somewhat ironically remarks, "an expression which shows nothing about time gives slight help toward solving problems in which time relations are important."[43]

c) Alternative kinds of cycle theories.—Cyclical fluctuations in economic activity can be interpreted in three rather different ways: (1) as a reaction of the economic system to disturbing causes "outside" the system (e.g., variations in weather, political changes, wars), the apparently cyclical character of the reaction being explained by the cyclical character of the disturbing causes (e.g., sun spots, Slutsky's cumulation of random events); (2) as a reflection of a fundamentally unstable economic system given to cumulative one-way movements that are brought to an end either by accidental outside events or by such internal limits as a maximum possible quantity of money; (3) as self-generating, in the sense that the adaptive mechanism of the economy is cyclical, so that both long-run dynamic change and accidental impacts are converted into cyclical movements.

In his 1913 *Business Cycles* Mitchell examines these various ways of interpreting cyclical fluctuations, though he does not list them explicitly as I have; and accepts the third.

> Of course prosperity confers no immunity against disasters which interfere with the course of business; but over such rocks the accumulated momentum of good times may run without serious mishap. The great shortage of the American corn crop in 1901 did not stop the "boom" then in progress, though it came soon after a spectacular corner in the stock market; the failure of Mr. Walsh's banks in Chicago, the San Francisco fire, and the great coal strike did not stop the "boom" of 1905–06, though they followed hard one on the other. . . . On the other hand, many periods of intense prosperity have ended in years of peace, plenty, and good fortune. The waning, like the waxing of prosperity, therefore, must be due, not to the influence of "disturbing causes" from outside, but

[41] *Ibid.*, pp. 137–38.

[42] *Ibid.*, p. 131.

[43] *Ibid.*

to processes which run regularly within the world of business itself.[44]

Mitchell never found any reason to change this conclusion on the basis of his further work.

It makes little difference for the kind of theory accepted by Mitchell whether the system is regarded as converting long-run dynamic change and "disturbing causes" into cyclical movements or whether the cyclical movements are internally generated so that even in the absence of "disturbing causes" they would continue indefinitely with approximately constant amplitude. In either case, the character of the cycle is determined primarily by the institutional organization of the economy, not by the nature of the "disturbing causes," and both prediction and control of the cycle are to be sought in an understanding of the "processes which run regularly within the world of business itself."

Mitchell's remarks on the various kinds of theories are spread through Part III of his 1913 volume, and many are in the form of incidental comments on other issues. Yet it seems clear that he rejected the hypothesis that outside disturbing causes are the dominant explanation of cyclical fluctuations in the economic system primarily on the basis of evidence like that contained in the passage quoted in the second preceding paragraph together with evidence on the consistency in the behavior of various activities. There seemed to be no such concentration of unfavorable "disturbing causes" at the peaks of cycles, or of favorable "disturbing causes" at the troughs, as this type of theory would imply. Nor did the movements of various sectors of the economy in relation to one another seem consistent with their determination by the accidental impact of the particular "disturbing causes" that might be said to account for the particular cycle.

> Quite apart from the victims of special misfortunes, however, certain trades and localities have a late or a minor share in the benefits of a business revival. Such is the case on the whole with the agricultural and grazing sections. . . . Even in those notable cases when the revival has begun with profitable crops for the farmers in certain sections. . . .[45]

Mitchell rejected the hypothesis that cyclical fluctuations reflect a fundamentally unstable economic system given to cumulative one-way movements brought to an end by some barrier presumably because the turns in economic activity did not seem to be sharp, as might be expected if a theory of this type were valid, and because he could identify no barrier or set of barriers that seemed consistently to end expansion or contraction. He emphasizes the "slow growth of the volume of business" at the trough in the absence of "some fortunate circumstance [which] gives a sudden fillip to demand," the "slow accumulation of stresses within the balanced system of business," the fact that "the crisis merges into depression in the same unobtrusive fashion that it emerged from prosperity."[46] Further, under the gold standard in effect when Mitchell was writing his 1913 volume, there was an upper limit to the aggregate quantity of circulating medium, so that "in default of other checks, the inadequacy of cash reserves would ultimately compel the banks to refuse a further extension of loans upon any terms. But before this stage has been reached, the rise of prices is stopped by the consequence of its own inevitable inequalities."[47] Hence even this fairly clear barrier did not seem

[44] *Business Cycles* (1913), p. 473. See also *ibid.*, p. 512.

[45] *Ibid.*, p. 456.

[46] *Ibid.*, pp. 579, 573, and 548.

[47] *Ibid.*, pp. 574–75.

to operate at all regularly. Limitation of the supply of money is an important factor in business cycles, but it operates through impeding cumulative movements rather than as a barrier.

Despite Mitchell's rejection of disturbing causes and of inherent instability combined with more or less rigid barriers as the prime movers in the cyclical process, he nonetheless found a place for these phenomena in his theoretical discussion. Some "propitious event" might hasten "this transformation" from "dullness into activity" which, "left to itself . . . is effected by slow degrees."[48] More important, accidental events are likely to determine whether a crisis degenerates into a monetary panic, though the possibility of their doing so "arises primarily from . . . banking organization and practice."[49] Mitchell places considerable emphasis on what he describes as "cumulative" processes in expansions and contractions (discussed in Sec. III below) and remarks that "the more vividly this cumulative growth of prosperity is appreciated, the more difficult becomes the problem why prosperity does not continue indefinitely."[50] He hints at a barrier at the bottom in a minimum level of consumption:

> Current consumption requires current production. Clothing, furniture, machinery and other moderately durable articles which have been used *as long as possible* are finally discarded and replaced. Population continues to increase at a fairly uniform rate: the new mouths *must* be fed and the new backs clothed. [Italics added.][51]

Mitchell's retention of elements from theories that he rejected as the primary explanation of cyclical fluctuations is characteristic of the man. It is of a piece with his personal tolerance; his capacity for comprehensive yet accurate description; and his wide-ranging interest in history, psychology, other social sciences, and the natural sciences. It gives his writing a highly realistic cast; yet it also blurs the sharpness of his theoretical formulations. It is a major reason why it is so difficult to assert with confidence what factors Mitchell considered basic, what factors subsidiary. It explains why at times his theoretical analysis seems to be a grab bag held together by expositional skill rather than the closely reasoned structure it really is.

I am inclined to believe that Mitchell's conception of the business cycle as a self-generating process is ultimately traceable to the influence of Thorstein Veblen, less, however, through Veblen's cycle theory than through his emphasis on the importance of studying the evolution of institutions and his conception of economic history as a process of "cumulative change" in which one phase of historical development can be understood only in terms of the conditions out of which it grew and itself becomes the source of further change. It seems to me likely that this notion was the source of Mitchell's view that "a theory of business cycles must therefore be a descriptive analysis of the cumulative changes by which one set of business conditions transforms itself into another set."[52] Mitchell recognized and emphasized that these cumulative changes were themselves subject to cumulative change: "Business history repeats itself, but always with a differ-

[48] *Ibid.*, p. 571.

[49] *Ibid.*, p. 577.

[50] *Ibid.*, p. 473.

[51] *Ibid.*, pp. 578–79. It should be noted that, as Mitchell doubtless recognized, the words I have italicized are by no means self-explanatory. The first italicized phrase cannot well refer to physical possibility, and conventional standards do not set a rigid limit. The second also does not describe a physical necessity and sets no rigid limit except through an answer to the unasked question, "How much?"

[52] *Ibid.*, p. 449.

ence. This is precisely what is implied by saying that the process of economic activity within which business cycles occur is a process of *cumulative* change."[53] But this was, from a broad view, a qualification rather than an essential part of his main work. He there adopted the working hypothesis that the business cycle could be regarded as a repetitive process, at least as a first approximation.[54] Veblen's "cumulative change" was thus largely restricted to the confines of a single business cycle.

Mitchell was not, of course, the first to conceive of business cycles as self-generating. As he wrote in 1913:

> The theory of crises has grown into the theory of business cycles. . . . The explanations in favor today ascribe the recurrence of crises after periods of prosperity to some inherent characteristic of economic organization or activity. The complex processes which make up business life are analyzed to discover why they inevitably work out a change from good times to bad and from bad times to good.[55]

Barnett argues that this view goes back even farther than Mitchell claims. Barnett writes: "It is a conservative conclusion that most of the abler writers from 1860 to 1900 were concerned with the alternate upward and downward movements of business activity—that is, business cycles—rather than, as frequently thought, with crises and depressions considered as temporary departures from prosperity."[56]

The existence of precursors does not detract from the importance of Mitchell's hypothesis that cyclical fluctuations in economic activity can best be interpreted as self-generating movements. Mitchell stated this hypothesis more explicitly and precisely than his predecessors, assembled a wider range of evidence bearing on its validity, and used it to organize and interpret a more extensive and comprehensive body of evidence. Prior to his work, the hypothesis was a conjecture accepted by a considerable number of students. He made it an integral part of economic thought.

III. A THEORY OF BUSINESS CYCLES CONSTRUCTED FROM MITCHELL'S WORK

Careful study of Part III of Mitchell's 1913 *Business Cycles* induces in me both exasperation and admiration. It induces exasperation, because numerous significant theoretical insights are so carefully hidden under the smooth, casual-sounding exposition of descriptive material. Time and again Mitchell seems on the verge of making explicit abstract statements about an essential element in the cyclical process, only to withdraw into a summary of empirical regularities or a listing of special cases or an elaboration of qualification. It induces admiration, because the theoretical insights are there after one pierces their protective coloring and are significant and profound and because the summary of empirical evidence on business cycles is so thorough, so thoughtful, and so well organized. I do not believe one can be certain precisely what "the theory of business cycles presented in Chapters X–XIII", is, and whether it is solely "a descriptive analysis,"[57] as Mitchell designates it, or an integrated abstract "model" capable of accounting for the major characteristics of the business cycles we have experienced and having empirical implications susceptible to contradiction. Does it really ac-

[53] *Ibid.*

[54] This hypothesis was put to a searching test and emerged essentially intact in chaps. x and xi of *Measuring Business Cycles*.

[55] *Business Cycles* (1913), pp. 5 and 6.

[56] Paul Barnett, *Business-Cycle Theory in the United States* ("University of Chicago Studies in Business Administration," Vol. XI, No. 3 [Chicago: University of Chicago Press, 1941]), p. 121.

[57] *Business Cycles* (1913), p. 570.

count for the dominance of expansionary forces at certain times and of contractionary forces at others? Or does its appearance of doing so simply reflect expositional skill—the stressing of expansionary forces in his discussion of the rising phase of a cycle, of contractionary forces in his discussion of the declining phase?

A remark by Arthur F. Burns in his moving appreciation of Mitchell suggested how I could present Mitchell's contribution to business-cycle theory while avoiding these troublesome questions of textual criticism and interpretation. Burns remarks about Part III of the 1913 volume: "I venture the prophecy that if Mitchell's homely work of 1913 were translated into the picturesque vocabulary of 'propensities,' 'multipliers,' 'acceleration coefficients' and the like, it would create a sensation in the theoretical world."[58] I have followed the spirit rather than the letter of Burns's suggestion—I have neither translated the whole of Part III nor attempted a literal translation. The aim of the free rendering that follows is to show that an integrated business-cycle theory can be constructed from—or read into—Mitchell's work and to express it in terms that bring out its similarities and dissimilarities to other existing theories.

I am by no means confident that Mitchell would have accepted the product as his own. He might well have regarded it as a selection of some elements of his discussion to the neglect of equally important elements, as one of several possible variants among which he might have felt he knew too little to choose confidently. Even greater doubts attach to the mathematical formulation I have appended; it has been constructed to prove some statements and illustrate others, not to provide a faithful translation of the verbal theory. Yet I do not think that it is wrong to regard the theory outlined below as displaying Mitchell's contribution—or part of his contribution—to business-cycle theory. The use others make of a man's work is as valid a test of its significance as the use he makes of it; what others read into his work may be as significant as his own interpretation of it.

At the very broadest level of generality, persistent self-generating fluctuations in economic activity can occur only in a world characterized by both uncertainty (in the sense of unpredictable change) and lags in response (in the sense of different timing of response).[59] In the type of theory accepted by Mitchell, cyclical movements in economic activity are regarded as dominated primarily by the institutional responses of the economic system rather than by the particular unpredictable changes that occur. It follows that lags in response are the central elements in theories of this type. Further, if "a cycle consists of expansions occurring at about the same time in many economic activities, followed by similarly general recessions, contractions, and revivals which merge into the expansion phase of

[58] *Op. cit.*, p. 26.

[59] Uncertainty alone could produce cycles without lags in response in either of two ways: (1) if the unpredictable changes themselves came in cycles or (2) if the system were fundamentally unstable but expansion or contraction ultimately ran into barriers. But these correspond to the two kinds of theories Mitchell rejected. If neither (1) nor (2) is accepted, and lags in response are ruled out, the pattern of change in economic activity must be a direct reflection of the pattern of unpredictable change, and, since the latter is not cyclical, neither is the former. Hypothetical models can be set up in which lags alone produce persistent cycles in the absence of uncertainty—e.g., the "cobweb" cycle of constant amplitude produced by a lag in output adjustment will proceed indefinitely, once started, without the introduction of (further) uncertainty. But in this case it would seem untenable to suppose the persistence of the lags. Hence my rejection of this possibility. It should be noted that this is a highly dogmatic and incomplete treatment of a subtle and difficult problem.

the next cycle,"[60] the lags in response must be pervasive, they must operate on a broad range of activities, these activities must be linked to one another and to the remainder of the system, and the whole must display consistent, though not identical, responses in successive cycles. We can thus center our discussion on the specific lags that seem basic in Mitchell's discussion, the reasons why he thought them pervasive, and the linkages among different activities.

a) The lag of induced expenditures behind receipts.—Some expenditures can be regarded as linked more or less directly and mechanically to the receipts of a current or an earlier period. The lag of such induced expenditures behind the receipts that occasion them, which in recent years has been enshrined in the "multiplier process," is central in Mitchell's explanation of the conversion of revivals into what he describes as cumulative expansions and contractions of general activity.

> A revival of activity . . . within a narrow range of industries . . . soon spreads to other parts of the business field. For the active enterprises must buy more materials, wares, and current supplies from other enterprises, the latter from still others, and so on without assignable limits. . . . There results an increase in family incomes and an expansion of consumers' demand, which likewise spreads out in ever widening circles. . . . Soon or late this expansion of orders reaches back to the enterprises from which the impetus to greater activity was first received, and then this whole complicated series of reactions begins afresh at a higher pitch of intensity.[61]

This lag leads to a pervasive movement in part because of "the lines of interconnection among business enterprises which were traced in Chapter II," in part, "by engendering an optimistic bias in the calculations of all folk who are concerned with the active direction of business enterprises and with the providing of loans."[62]

Alone, the lag of induced expenditures behind receipts is not capable of explaining a cycle. At all times, an expansion in one place is felt in many other places; optimism breeds optimism. But, equally, a decline in one place is felt in many other places; pessimism breeds pessimism. Something else must be introduced to explain why, at certain times, initial expansions are more important than initial contractions and, at other times, contractions than expansions. Mitchell fully understands this point; he uses this lag only to explain how initial revivals or contractions are diffused and prolonged. Further, as is by now widely recognized, this lag alone does not necessarily lead to a continued movement at a constant or increasing rate. The kind of movement that is generated depends critically on the particular relation between changes in receipts and in induced expenditures. Let there be an "autonomous" increase in the *rate* of expenditures, hence in someone's rate of receipts. If there are (positive) "leakages," induced expenditures within the system being considered will tend to be less than the receipts that occasion them. In this case, the multiplier process explains, as it were, why each successive "round" tends to be less than the preceding "round," so that the expansion slows down and a new, higher, but stable level tends to be attained. The expansion tends to proceed at a constant or increasing rate only if leakages are zero or negative; and this is likely to occur only as the result of some such phenomenon as the "optimistic bias" suggested by Mitchell.[63]

[60] Burns and Mitchell, *op. cit.*, p. 3.

[61] *Business Cycles* (1913), p. 571.

[62] *Ibid.*, pp. 453 and 55.

[63] See Note 1 in the Appendix to this section.

b) Lags and differential responses in the system of prices.—Just as the lag of induced expenditures behind receipts leads to the diffusion and prolongation of any autonomous change in expenditures, so it leads to the diffusion and prolongation of the associated change in prices. These changes in prices add additional features of their own. The system of prices as a whole does not move synchronously with expenditures or the physical volume of trade, and there are systematic differences in both the timing and the magnitude of the response of component parts of the system of prices.

Mitchell finds that, at the trough of the cycle, prices tend to rise later than expenditures or the physical volume of trade. He argues that the existence of much unused capacity at that stage of the cycle means that an expansion in money demand leads to an expansion of output without an immediate rise in prices. Even after prices begin to rise, they are likely to continue to lag, at least for a time, because of the influence of public regulation, contracts, and custom.[64] I am not sure what Mitchell considered the relation to be between the physical volume of output and prices at the peak of the cycle—it is not clear whether he regards both as turning down simultaneously, prices as turning down first, or output as turning down first.

Of course, the whole system of prices does not react synchronously; some prices systematically tend to lag behind others. But the particular lags that Mitchell regarded as reasonably well established are not at all crucial for the present theory. The differential magnitudes of response of different prices are much more important than differential timing of response; in particular, the differential rates of response of what business concerns regard as their selling prices and their buying prices. Here Mitchell notes contradictory movements. One crucially important buying price—wages—tends to move more sluggishly than selling prices, primarily, in Mitchell's view, because custom and friction tend to "impede the free working of supply and demand in the labor market . . . and tend to keep wages more stable than are prices in markets where pecuniary motives have unrestricted sway."[65] On the other hand, wages aside, "what must be taken as buying prices creep up on selling prices during a period of prosperity."[66]

These differential rates of response are important because they affect profits, which, in turn, affect investment. The direction of their net effect on profits depends on the relative importance of the differential responses of wages and other buying prices. In Mitchell's view, the responses of wages are the more important, so that during the early stages of expansion "in the great majority of enterprises, larger profits result from these divergent price fluctuations coupled with the greater physical volume of sales. For, while the prices of raw materials and of wares bought for resale usually, and the prices of bank loans often, rise faster than selling prices, the prices of labor lag far behind, and the prices which make up supplementary costs are mainly stereotyped for a time by old agreements."[67]

Thus, taken by themselves, these differential movements of prices would provide, as it were, a reason for negative leakages and thus promote the continuance of expansions or contractions. Let an expansion get under way and be prolonged by the lag of induced expenditures

[64] *Business Cycles* (1913), pp. 457, 458, 496, and 497.

[65] *Ibid.*, p. 466.

[66] *Ibid.*, p. 481.

[67] *Ibid.*, p. 572.

behind receipts. The milder rise in wages than in selling prices will tend to increase profits and thereby lead to new expenditures for investment in addition to those directly linked to the higher receipts, thus adding a new force making for expansion. And the reverse would occur in contractions.

But the changes in per-unit prices cannot be taken by themselves. In the first place, different selling prices behave quite differently; in some lines selling prices are relatively rigid, in others, highly flexible; in some lines special circumstances will produce movements against the tide. In consequence, some firms will be experiencing declining profit margins, and the favorable effect of further increases in already large profit margins is likely to be less than the unfavorable effect of declines in none-too-wide profit margins.[68] In the second place, the changes in per-unit prices are accompanied by changes in the physical volume of output that spell changes in per-unit cost even at fixed buying prices. In expansion "equipment which is antiquated and plants which are ill-located or otherwise work at some disadvantage are brought again into operation. . . . The efficiency of labor declines. . . . Finally, the numerous small wastes, incident to the conduct of business enterprises, creep up when managers are hurried by a press of orders demanding prompt delivery."[69] In short, cost curves rise (i.e., slope positively) after some point as output increases and ultimately rise steeply. Both the divergent experiences of different firms and the rise in unit costs operate to discourage investment, and so to offset the effect of the differential responses of wages and selling prices.[70]

c) The lag of investment expenditures behind investment decisions.—Like most other business-cycle theorists, Mitchell attaches great importance to investment expenditures. Investment expenditures need bear no very close relation to prior receipts and are not in any way mechanically required by them. They are therefore ideally qualified to serve as the kind of noninduced expenditures required to set the multiplier process going. In addition, the volume of activity in construction and producers' goods industries fluctuates more widely than in most other industries, thus calling attention to investment as a potentially crucial factor in the generation of cycles.[71]

As I read Mitchell, he considered the chief determinants of the amount of investment that business enterprises decide to undertake to be prospective profits, costs of construction, and the availability of, and rates of interest on, loans. Prospective profits, in turn, he considered closely related to current profits and their distribution, and current profits, to the current profit margin and the physical volume of sales.[72] The behavior of some of these determinants of investment has already been discussed: the differential movements of prices widen the profit margin during the early stages of an expansion and thus reinforce the direct effect on profits of the expansion in the physical volume of sales; the expansion in the physical volume of sales also tends to produce a distribution of profits unfavorable to further expansion of investment; it also brings higher costs at fixed prices that tend to inhibit the further widening of the profit margin and the further increase of profits or to produce declines. As to the other determi-

[68] *Ibid.*, p. 575.

[69] *Ibid.*, p. 573.

[70] See Note 2 in the Appendix to this section.

[71] *Business Cycles* (1913), pp. 471 and 483–84.

[72] *Ibid.*, pp. 459, 460, 464, 486, 487, 499, 504, 557, 567, 572, and 573.

nants, the same factor that tends to make unit costs rise in all expanding industries—essentially, a rising cost curve—operates with special force in investment goods industries because of the wider fluctuations in output. In this way, rising cost curves serve as a double deterrent to the continued expansion of investment—by inhibiting the widening of the profit margin and by raising construction costs. Finally, for reasons to be discussed in connection with monetary forces, after expansion has proceeded for a while, interest rates tend to rise sharply and loans to become less readily available.

Similar forces operate in a contraction. The differential response of selling prices and wages would by itself lead to a narrowing of the profit margin in a contraction, though with a lag, and thus reinforce the direct effect on profits of the decline in the volume of business. But the reduction of the level of output reduces unit costs, including construction costs, at fixed prices; interest rates fall; and loans become more readily available—all factors that tend to encourage investment.

If investment expenditures were simultaneous with the decision to undertake the corresponding investment, these reactions could explain the tapering-off of expansions or contractions, but not their reversal. Given a sufficiently vigorous expansion, the divergence in profit experience, rise in unit costs, including costs of construction, and increased cost and reduced availability of loans could in time overpower the effect of the differential movements of buying and selling prices and the expansion in the physical volume of sales and in this way lead to a decline in investment expenditure. But any such decline could not go far enough to produce a decline in national income (i.e., aggregate expenditures). For the changes unfavorable to investment are supposed to occur without a lag; they are produced by a rise in current income and would not have occurred if current income had not risen. So long as investment is in turn affected by them without a lag, this means that current investment can decline only if current income rises; hence these forces cannot reverse the direction of movement.[73]

To explain the reversal in direction of movement requires the introduction of another lag, one that is critical for the present theory, namely, a lag of investment expenditures behind investment decisions.

> Much of the work [on contracts for permanent improvements] . . . requires a year, two years, three years or even more to execute. . . . [74] Activity does not slacken at once in the

[73] To put the matter differently, suppose that investment expenditures are the only noninduced expenditures, that all other expenditures, which we may identify as consumption, are mechanically linked to the income (investment plus consumption) of current and prior periods, and that an expansion has been under way sufficiently long for current consumption to be linked solely to the income of periods that are part of the expansion. Consumption in the succeeding period will then tend to be higher than in the current period, since it is linked to a set of higher incomes. There is nothing in the forces so far discussed to prevent investment from being lower than in the current period, but it can be lower only if income is higher, since it will take a higher income to produce those unfavorable changes in the determinants of investment that simultaneously produce the lower investment expenditures. Any decline in investment expenditures must therefore be less than the rise in consumption, which itself is a delayed reaction to prior rises in income.

It should be noted that these conclusions rest on particular empirical hypotheses about the relations among the various price movements and their relative magnitudes. If the movements in buying prices other than wages were more important than the movements in wages, so that the profit margin narrowed during expansion and widened during contraction, or if wages were regarded as lagging behind prices, the forces so far described could alone produce a cyclical reaction to "disturbing causes." See Note 2 in the Appendix to this section.

[74] *Business Cycles* (1913), p. 487.

trades which do contract work and furnish materials. . . . Indeed, the mills making structural steel, etc., may be working under high pressure to get out work on which bonuses for quick delivery are expected at the very time their order books for the coming quarters are scantily filled. . . .[75] The work of building and installing the elaborate equipment of to-day lasts months if not years.[76]

This lag of investment expenditures behind investment decisions makes current investment expenditures depend on prior investment decisions, which in turn depend on prior income through the various determinants of investment. In consequence, there is no contradiction in supposing a rise in income to reduce investment undertakings to a level that would be inconsistent with the current level of income, for the current level of income is associated with the current level of investment *expenditures*, not of investment *undertakings*. The addition of this lag to the reactions so far considered therefore yields a system capable of accounting for reversals of movement and so for the complete cycle.[77]

So far nothing has been said to explain the wider fluctuations in the outpu tof the construction and equipment industries than in the output of other industries. Mitchell's explanation of this difference rests on what has since come to be called the "acceleration principle." In the absence of net new investment, these industries would be occupied primarily with producing replacements. To take a specific example, let us suppose that replacements require an annual output equal to 5 per cent of the existing capital stock. Let enterprises now seek to extend productive capacity to provide for an anticipated increase in demand of 5 per cent. Production of the required 5 per cent increase in available facilities in one year would call for a 100 per cent increase in the output of the construction and equipment industries. Thus, Mitchell writes:

Of course, the constant necessity for repairs and renewals provides a good deal of work for these construction trades at all times, and there is never a year when considerable extensions of old and construction of new plants are not undertaken. But when to this regular work . . . there is added the rush of orders from the many enterprises which see their own trade outrunning their facilities and from . . . numerous new projects . . . , then the construction trades have a season of activity which few of the industries for which they are working can match.[78]

d) The role of the monetary and banking system.—We have already noted that Mitchell regards the cost and availability

[75] *Ibid.*, p. 488.

[76] *Ibid.*, p. 485. See also p. 574.

[77] See Note 3 in the Appendix to this section.

[78] *Business Cycles* (1913), p. 484. See also *ibid.*, pp. 471–72, 475, 483–85, and 557.

Mitchell gives a good deal of verbal prominence to a lag connected with investment that it does not seem to me desirable to include in the present theoretical sketch. He writes: "For a while their [the construction trades'] demand for commodities is not accompanied by a corresponding increase in the market supply. What they are making in the way of equipment . . . does not come on the market as a factor opposing the advance of prices. . . . [But] when new industrial equipment is placed in active service both the demand for labor, materials, etc., and the current supply of products are enlarged. Hence the encroachment of costs and the difficulty of advancing selling prices are both aggravated" (*ibid.*, pp. 484 and 497).

This lag can obviously play a significant role only during expansion and at the peak. Here Mitchell regards it as (1) preventing product prices from rising as rapidly as they otherwise might toward the end of expansion and thus as a further factor inhibiting new investment and (2) operating differentially among industries and thus producing divergent profit prospects. Thus this lag is at best another reason for phenomena already accounted for. More important, it has significant offsetting effects: at least some additional resources required to operate the new equipment are released by the completion of the equipment; equipment is generally ordered to reduce unit costs, and the use of such equipment may widen the profit margin by impeding the advance of costs more than the increased output impedes the advance of prices.

of loans as one of the important determinants of the amount of investment that business enterprises decide to undertake. Changes in the cost and availability of loans are themselves produced by differential responses in the monetary and banking sphere. These responses play identically the same role in the cyclical process as the differential responses in prices and costs discussed earlier—alone, they are incapable of giving rise to cyclical movements and rather explain why an expansion or contraction tapers off and ultimately ceases. The lag of investment expenditures behind investment decisions must be combined with them to explain how changes in the cost and availability of loans can go "too far" and produce cyclical movements in general activity.

Mitchell distinguishes between the "investment market" (the market for long-term loans) and the "money market" (the market for short-term loans). He regards the former and the long-term interest rate determined in it as of primary importance for long-term investment undertakings; the money market and the short-term interest rate determined in it, for working capital and inventory investment.[79] These two markets are, of course, linked so that a change in the rate of interest or availability of funds in one market is communicated to the other. The main differences between them are, first, the greater inelasticity of demand for short-term loans, which Mitchell regards as the major factor explaining the wider fluctuations in short- than in long-term interest rates,[80] and, second, the much greater direct importance of banks in the short- than in the long-term market.[81] Since Mitchell's analysis is more explicit and detailed for the banking system than for other lenders, I shall restrict the discussion largely to the banking system.

As I see it, three features of the monetary and banking system largely account for the cyclical role Mitchell assigns to it: the use of nondeposit currency for both a circulating medium proper and bank reserves, inelasticity in the total supply of nondeposit currency, and fractional reserve banking. To see how these interact, let us suppose that for some unspecified reason the pecuniary volume of business revives after a period of depression. The banks willing, the associated increase in the transactions demand for money can be met in part by an increase in the amount of currency in the hands of the public at the expense of bank reserves, even though the total does not increase, and in part by an increase in demand deposits under fractional reserve banking, even though bank reserves do not increase or even decline. And the banks are likely to be willing because "in times of depression bank reserves become larger in proportion to demand liabilities than bank managers think needful, so that periods of prosperity open with a considerable excess of lending power over current demands."[82]

The increase in currency in the hands of the public leaves a smaller fraction of the limited supply of nondeposit currency in the vaults of banks; the increase in demand deposits means that this smaller fraction must serve as reserves behind a larger volume of deposits. Both therefore tend to reduce the reserve ratio of the banking system.

> Just where bankers will draw their line against further expansion of loans it is . . . impossible to say. But it is certain that they will draw such a line firmly somewhere within fairly

[79] *Ibid.*, pp. 486–87 and 489–90.

[80] *Ibid.*, p. 489.

[81] *Ibid.*, p. 490.

[82] *Ibid.*, p. 491.

definite limits. As these limits are approached the bankers put up their discount rates and become more exacting in their acceptance of new applications for loans.[83]

The reverse occurs during a contraction—currency flows back from circulation into bank reserves, demand deposits decline, actual reserves exceed desired reserves, and so interest rates decline.[84]

The operation of this central response of the banking system is somewhat modified by two associated responses: (1) Changes in liquidity preference—both banks and other holders of liquid funds have a lower desire for liquidity during expansions, when optimism is general, than during contractions. For banks, this is reflected in a decline in the desired reserve ratio during expansions and a rise during contractions; for nonbanks, in a shift from speculative and precautionary balances to transactions balances during expansion and conversely during contraction, i.e., in a rise in the velocity of circulation during expansions and a fall during contractions.[85] (2) Changes in the ratio of currency held by the public to deposits—Mitchell finds empirically that the ratio of currency held by the public to deposits tends to rise during contractions and to fall during expansions. He gives no satisfactory explanation for this phenomenon, which may merely be another manifestation of the changes in liquidity preference or may reflect still other factors, such as a change in the relative importance of different classes of transactions.

These associated responses tend to restrain the rise in the rate of interest during an expansion—the change in liquidity preference by reducing both the reserve ratio desired by banks and the extra amount of money required to support the larger volume of transactions; the change in the ratio of currency to deposits by limiting the drain of currency from bank reserves. Similarly, both responses tend to slow up the decline in the rate of interest during a contraction.

The rise in interest rates produced by the response of the banking system to an expansion in the pecuniary volume of business will tend, Mitchell argues, to discourage new investment undertakings, which, in turn, would restrain the expansion in the volume of business and hence the associated rise in the interest rate. The crucial question once again is: Why does not the expansion simply taper off; why does it turn into a contraction? And, again, the answer is: Because expenditures on investment lag behind decisions to undertake investment. Today's interest rate is linked to today's volume of business through the transactions demand for money and its effect on the reserve position of the banks. Today's volume of business is linked to today's expenditures on investment rather than to the investment undertakings currently decided on or initiated. But today's expenditures on investment depend on yesterday's investment decisions, which were affected by yesterday's interest rate. Thus a relatively low interest rate yesterday may have stimulated heavy investment expenditures today, and these may be little affected by the rise in interest rates they produce. There is nothing, therefore, to prevent interest rates from rising to levels at which new investment undertaken is inadequate to maintain the current level of income. And, of course, precisely the same argument applies in reverse to a contraction.[86]

e) Summary of the preceding business-cycle theory.—Investment expenditures

[83] *Ibid.*, p. 492.

[84] *Ibid.*, p. 561.

[85] *Ibid.*, pp. 491–92, 494, and 566–67.

[86] See Note 4 in the Appendix to this section.

play the central role in the business-cycle theory just sketched. An expansion of investment expenditures sets in motion forces tending to discourage the undertaking of further investment; a contraction of investment expenditures, forces tending to encourage the undertaking of further investment. An expansion of investment expenditures is likely to continue even after new investment undertakings have ceased to grow because investment expenditures lag behind investment decisions. In consequence, the discouragement of new investment tends to go "too far," bringing about a reversal in the direction of movement; and conversely in a contraction. These movements are diffused through the economy and smoothed over time by induced expenditures and their lag behind income which give rise to the multiplier process.

According to the theory, two major sets of institutional responses affecting the desirability of undertaking new investment are brought into play by the expansions or contractions in investment expenditures: first, responses in the structure of prices, including wages, and in unit costs at fixed prices; second, responses in the monetary and banking system. The first set of responses has offsetting effects. The changes in prices alone tend to widen the profit margin during an expansion and so to encourage investment; the changes in unit costs, which ultimately are dominant, tend to narrow profit margins and raise the cost of construction and so discourage investment; and conversely during a contraction. The responses in the monetary and banking system lead to a rise in the interest rate and a reduction in the availability of loans during an expansion, which discourages new investment, and to a fall in the interest rate during a contraction.

The changes in prices and costs and in the monetary and banking system occur at the same time and affect the volume of investment undertaken in the same direction; yet there is no direct link between the two, and either would alone be capable of producing cyclical movements when combined with the lag of investment expenditures behind investment decisions. We thus have, as it were, a theory of business cycles resting on two pillars, with a single keystone—the lag of investment expenditures—and a common mortar—the multiplier process.[87]

f) Comparison of this theory with current theories.—The business-cycle theory I have constructed from Part III of Mitchell's 1913 volume contains practically every element that is significant in the business-cycle theories that are currently prominent. Here are the multiplier process, the acceleration principle, the Pigovian cycles of optimism and pessimism, the Marshallian and Hawtreyan drain of cash from the banking system and the resultant tightening of the money market, a decline in the expected yield from new investment at the peak that is the counterpart of the Keynesian "collapse of the marginal efficiency of capital" except that it is a continuous decline rather than a discontinuous "collapse," the Keynesian changes in liquidity preference. Here, too, is an attempt at a reasoned explanation and integration of these phenomena. The decline in the marginal efficiency of capital, for example, is not simply postulated, or attributed to unexplained changes in expectations or to a growth in the capital stock; it is linked to consistent movements in prices and costs; and these serve equally to explain the subsequent revival in the marginal efficiency of capital.

By no means all the elements I have

[87] See Note 5 in the Appendix to this section.

selected for special mention from Mitchell's theoretical discussion were new even when he wrote the 1913 volume; at least hints of most of them can be found in the theoretical writings Mitchell summarized in his Part I. The reasoned explanation and integration of the various elements and their linkage with empirical evidence contained in Part III are new, and they constitute the chief theoretical contribution of the 1913 volume.

The fact that the theory includes practically all current theories as special cases is by itself no virtue. Indeed, it would be an advance in business-cycle theory to demonstrate that so complex a system is either unnecessary or erroneous: that a simplified theory containing only part of the reactions encompassed in the broader theory is capable of rationalizing the available evidence and of yielding predictions that are not contradicted or that predictions derived from some elements of the theory are contradicted by available evidence. But the more limited theories that are now current represent an advance in neither respect. They are not simpler because it has been shown that the elements they stress are alone capable of explaining the observed phenomena or because it has been shown that other theories or component elements of theories have implications contradicted by experience. The only criteria to which they appear to have been subjected are, first, whether they are logically complete and attractive and, second, whether they are capable of producing cyclical movements whose broadest and most general features are like those observed. The important virtue of the theory I am inclined to attribute to Mitchell—and reflection on our progress in this field since 1913—is that, considered alongside current theories and judged entirely as a contemporaneous product, it is not clearly inferior to any.

I have found only two points of any consequence in Mitchell's theoretical discussion, at which it seemed to me the analysis—as distinct from the language—might have been changed significantly by full knowledge of the work in business-cycle theory that has been done in the intervening period. One point is in connection with his discussion of the relation between savings and investment, when, for example, he says, "For a time, however, the fresh accumulations of capital are not accompanied by a corresponding volume of fresh investments in business ventures." This sentence can be interpreted so as to be entirely consistent with the Keynesian emphasis on the accounting equality between saving and investment, as usually defined, and the importance of distinguishing *ex post* from *ex ante* magnitudes. At the same time, I feel that the discussion from which it is extracted would be written differently and more meaningfully in the light of these developments. Yet, even here, Mitchell is not really led astray. A modern writer could disagree with the language but not with the substance of the comment, following close upon the sentence just quoted: "Certainly a considerable . . . share of the liquid capital provided by certain individuals in seasons of depression is used merely to cancel part of the losses incurred by other individuals. Such investments represent a redistribution of ownership, but no new creations of industrial equipment."[88]

The other point is at the end of Mitchell's theoretical discussion. After showing how "depression paves the way for a return of prosperity," Mitchell concludes his theoretical discussion with the statement: "Such is the stage of the business cycle with which the analysis began, and, having accounted for its own beginning,

[88] *Business Cycles* (1913), pp. 566–67.

the analysis ends."[89] Now this is clearly misleading; given that the process of cumulative change leads to a situation qualitatively like the initial situation, there remains the quantitative question of amplitude. The forces that Mitchell discusses might produce a cycle that was so strongly damped that it could not meaningfully be regarded as "self-generating" or a cycle so explosive that it could not be regarded as a meaningful description of empirically observed cycles. Mitchell does not explicitly refer to this problem; no one familiar with recent theoretical work, particularly that expressed in mathematical language, could fail to do so, though unfortunately it cannot be said that he would be equipped to solve the problem.

But after all these are relatively minor points. As Burns implied, the major difference between Mitchell's theoretical discussion and modern discussion is in language rather than substance. He uses none of the jargon we have grown so fond of—"propensities," "multipliers," "acceleration principle," etc.—and he uses no mathematics. The preceding sketch demonstrates, I hope, that this is almost entirely a difference in language, that his theoretical discussion can readily be translated into current jargon—as I have done to some extent in the text—or into difference equations—as I have done to a much lesser extent in the appended notes.

Mitchell's general conception of business cycles as reflecting cycle-generating responses of economic institutions to uncertain change has come to dominate business-cycle analysis and is today hardly questioned. It is much less clear how much influence should be assigned to the details of his work. The identity of details of other current theories with elements in Mitchell's discussion may well reflect primarily independent rediscovery or the influence of still earlier writings rather than Mitchell's direct influence.

Perhaps the most important reason why the details of Mitchell's discussion did not have a more direct, obvious, and far-reaching influence is the direction his own work followed. Mitchell essentially took the position that the 1913 volume was preliminary and superficial; that it needed to be reworked from beginning to end. The 1927 *Business Cycles* was a reworking of Part I of the 1913 volume; a lengthy unpublished manuscript that served as the starting point for many of the monographs undertaken at the National Bureau of Economic Research, of Part II; the volume to be published posthumously, *What Happens during Business Cycles*, the first instalment of a reworking of Part III. Mitchell's persistence in this task is a tribute to his tenacity and the standard of thoroughness he set himself. But I believe his subsequent work would have been more fruitful if he had devoted more of his energies to testing and improving the theory in his 1913 volume and less to purely factual analysis. At any rate, his concentration in recent years on the facts of business cycles has made people overlook the theoretical work he had previously done. Mitchell came to be regarded as a master compiler of fact, who—apart from his factual determinations—had nothing to contribute to economic theory at large or even to business-cycle theory.

In view of Mitchell's own attitude toward his theoretical work as expressed in his research program, its appearance just prior to World War I, the elaborately casual language in which it is presented, and the extent to which its abstract elements are concealed, it is not surprising that economists may have had to rediscover its essential elements.

[89] *Ibid.*, pp. 569 and 579.

IV. CONCLUSION

Mitchell's striving for theoretical explanations of the phenomena he studied was an essential element in his scientific work. It led to the contributions to the explicit formulation of economic theory that have been presented in the preceding sections of this paper—the development of a hypothesis about the role of money in shaping economic practice and thinking, the improvement of the quantity theory of money, the selection of one among several types of business-cycle theories, and the elaboration of a specific business-cycle theory. Equally important, it focused his empirical work on meaningful problems, made it analytic as well as descriptive, and prevented him from engaging in empiricism for its own sake. The ultimate fruits of his theoretical insights and objectives are as much in his empirical work as in the more explicitly theoretical writings with which this paper has dealt.

APPENDIX TO SECTION III

The following semiconnected notes contain a mathematical model of a business-cycle theory, the central elements of which are taken from the theory I have constructed from Mitchell's work and presented verbally in Section III. At the same time, they are not intended as an exhaustive or unique translation of that theory into mathematics, or as a version of the theory that Mitchell would have accepted as his own, or even as the mathematical formulation of the theory that I should regard as the most fruitful basis for further research and empirical verification. Their purpose is very different and much more modest: to prove some of the statements made in the text without rigorous proof and to illustrate others. Accordingly, I have not hesitated to omit from the model abstract elements of the theory that were not essential to the propositions needing proof or to select from alternative renderings of various elements of the theory the version that would make exposition easiest even though it might not be the most significant. The point on which the notes depart most from the spirit of the verbal theory is in the treatment of lags. To keep the exposition and analysis in these notes manageable, I have adopted the highly restrictive assumption that all lags are of the same duration and equal to one time unit. This assumption clearly plays no part in Mitchell's theoretical discussion and would be an undesirable restriction in a formulation to be used as a basis for empirical research.

To facilitate reference, I have indicated the subsection of Section III to which each note should be considered as appended.

Note 1 (to Sec. III, a).—The multiplier process in its simplest form implies a division of all expenditures into two classes: (1) those linked mechanically and directly with receipts of the current or an earlier period—these are called "induced expenditures" in the text; (2) all other expenditures, some or all of which may be indirectly connected with receipts but are not directly linked with them—these are called "autonomous expenditures" in the text.

Consider only those receipts and expenditures that remain in a consolidated national income account. Let Y be total national income; C, induced expenditures; and I, autonomous expenditures.[19] Let the subscript $-i$ designate the value for the ith preceding time unit, say, year. Total expenditures, i.e., income, are then given by

$$Y = C + I . \qquad (1)$$

The linkage between induced expenditures and prior receipts can be expressed by

$$C = f_1(Y_{-1}) . \qquad (2)$$

Substituting (2) into (1) yields the difference equation

$$Y = f_1(Y_{-1}) + I . \qquad (3)$$

For a fixed value of I, there will be some value of Y for which $Y = Y_{-1}$. This is the stable solution. Now let I be changed. One can then use equation (3) to trace the subsequent reactions of Y. The character of these reactions depends on

$$\frac{dY}{dY_{-1}} = f_1' , \qquad (4)$$

where the prime designates a derivative. The reactions can be cyclical, of the "cobweb"

[19] The letters C and I are chosen to conform to the conventional, though misleading, identification of induced expenditures with consumption and of autonomous expenditures with investment.

variety, only if f_1' is negative. But f_1' is positive, since an increase in receipts is taken as leading to an increase in expenditures. If $f_1' \geqslant 1$, which is equivalent to saying that there are zero or "negative" leakages, i.e., that an increase of $1.00 in receipts leads to an increase of $1.00 or more in induced expenditures, then the reactions will tend to lead to an indefinite expansion or contraction at a constant or increasing rate in response to a change in I. If $f_1' < 1$, there are positive leakages, and a change in I leads to a series of successively smaller changes in Y, thus to a one-way movement that tapers off. For example, let $C = .9Y$. Then equation (3) becomes

$$Y = .9\,Y_{-1} + I\,.$$

If I is 10, the equilibrium level of Y is 100, the "multiplier," 10. Let I change to 15. The new equilibrium level of Y is 150, and the successive values taken by Y in approaching this level are 100, 105, 109.5, 113.55, ...

Note 2 (to Sec. III, b and c).—Let P represent selling price per unit of output; B, cost per unit of output, which is dependent on buying prices and technical cost conditions. The hypothesis that investment is a synchronous function of the profit margin (because the profit margin affects profits) can be expressed by the equation

$$I = f_2(P - B)\,, \tag{5}$$

and the lag of prices behind output that Mitchell considers to exist by

$$P = f_3(Y_{-1})\,. \tag{6}$$

The effect on B of movements of wages and other buying prices can be taken into account by making it depend on the prior year's output; the effect on B of the technical conditions determining the marginal cost curves, by making it depend on the current year's output. This gives

$$B = f_4(Y_{-1},\ Y)\,. \tag{7}$$

In these equations, f_2' and f_3' are positive, and so are the partial derivatives of f_4. Substituting from equations (6) and (7) into (5), and the result into (3), gives

$$\left.\begin{aligned} Y = {} & f_1(Y_{-1}) \\ & + f_2[f_3(Y_{-1}) - f_4(Y_{-1},\ Y)]\,, \end{aligned}\right\} \tag{8}$$

an implicit difference equation,

$$\left.\begin{aligned} g(Y,\ Y_{-1}) = {} & Y - f_1(Y_{-1}) \\ & - f_2[f_3(Y_{-1}) \\ & - f_4(Y_{-1},\ Y)] = 0\,. \end{aligned}\right\} \tag{9}$$

From this equation

$$\frac{dY}{dY_{-1}} = \frac{f_1' + f_2'\left[\dfrac{\partial f_3}{\partial Y_{-1}} - \dfrac{\partial f_4}{\partial Y_{-1}}\right]}{1 + f_2'\dfrac{\partial f_4}{\partial Y}}\,. \tag{10}$$

The separate influence of the differential rates of response of buying and selling prices can be isolated by setting $(\partial f_4)/(\partial Y) = 0$. I have attributed to Mitchell the empirical hypothesis that these differential responses alone would mean a widening of the profit margin during expansion and a narrowing during contraction because the milder movement of wages than of selling prices is more important than the sharper movement of other buying prices. This is equivalent to saying that

$$\frac{\partial f_3}{\partial Y_{-1}} > \frac{\partial f_4}{\partial Y_{-1}}\,.$$

It follows from equations (4) and (10) that $(dY)/(dY_{-1})$ is numerically larger if computed from equation (8) or (9) than from (3), which is a translation of the statement in the text that "taken by themselves, these differential movements of prices would . . . promote the continuance of expansion or contractions." The influence of the level of output on costs through the marginal cost curve can be included by setting

$$\frac{\partial f_4}{\partial Y} > 0\,.$$

The larger $(\partial f_4)/(\partial Y)$, the smaller is $(dY)/(dY_{-1})$ from (10), which is a translation of the statement in the text that this factor tends "to offset the effect of the differential responses of wages and selling prices." So long as all the derivatives in (10) are positive, and

$$\frac{\partial f_3}{\partial Y_{-1}} > \frac{\partial f_4}{\partial Y_{-1}}\,,$$

however, $(dY)/(dY_{-1})$ from (10) is positive, which rules out the possibility of cyclical movements. This is a translation of the statement in the text that "these reactions could explain the tapering-off of expansions or contractions, but not their reversal."

If movements in buying prices other than wages were more important than the movements in wages so that the profit margin narrowed for this reason during expansion and widened during contraction, the converse of Mitchell's hypothesis, then $(\partial f_3)/(\partial Y_{-1})$ would be less than $(\partial f_4)/(\partial Y_{-1})$ and $(dY)/(dY_{-1})$ from equation (10) could be negative, so producing cycles of a cobweb variety. Alternatively, if wages were regarded as lagging behind prices, which again is not in agreement with Mitchell's conclusions, equation (7) could be replaced by

$$B = f_5(P_{-1}, Y), \tag{11}$$

which would give a final implicit equation

$$\left.\begin{aligned} g(Y, Y_{-1}, Y_{-2}) &= Y - f_1(Y_{-1}) \\ &\quad - f_2\{f_3(Y_{-1}) \\ &\quad - f_5[f_3(Y_{-2}), Y]\} = 0. \end{aligned}\right\} \tag{12}$$

The positive sign of the partial derivatives implies that

$$\frac{\partial Y}{\partial Y_{-1}} > 0, \quad \frac{\partial Y}{\partial Y_{-2}} < 0$$

when computed from equation (12), which is compatible with either cumulative one-way movements or cycles that are not of the cobweb type, depending on the numerical values of the derivatives.

Note 3 (to Sec. III, c).—A lag in investment expenditures behind investment decisions can be expressed by replacing equation (5) by

$$I = f_6(P_{-1} - B_{-1}). \tag{13}$$

Combining equation (13) with (3), (6), and (7) yields

$$\left.\begin{aligned} g(Y, Y_{-1}, Y_{-2}) &= Y - f_1(Y_{-1}) \\ &\quad - f_6[f_3(Y_{-2}) \\ &\quad - f_4(Y_{-2}, Y_{-1})] = 0. \end{aligned}\right\} \tag{14}$$

The positive sign of the partial derivatives together with the hypothesis that

$$\frac{\partial f_3}{\partial Y_{-2}} > \frac{\partial f_4}{\partial Y_{-2}}$$

implies that

$$\frac{\partial Y}{\partial Y_{-2}} > 0.$$

Nothing san be said definitely about the sign of $(\partial Y)/(\partial Y_{-1})$. These results are compatible with the generation of cycles by equation (14).

Note 4 (to Sec. III, d).—Let m be the total stock of currency eligible for use as reserve or as currency in the hands of the public, and assume it fixed.[91] Let H be the amount of currency in the hands of the public; D, the amount of deposits; R, the actual reserve ratio of the banking system; R^*, the desired reserve ratio; and r, the rate of interest. Then, by definition

$$R = \frac{m - H}{D}. \tag{15}$$

The changing liquidity preference of the banks can be expressed by

$$R^* = f_7(Y); \tag{16}$$

the transactions and liquidity demand for currency and deposits by the public by

$$H + D = f_8(Y, r); \tag{17}$$

the relation between the level of income and the ratio of currency in the hands of the public to deposits by

$$\frac{D}{H + D} = f_9(Y); \tag{18}$$

and the dependence of the interest rate on the reserve position of the banks by

$$r = f_{10}(R^* - R). \tag{19}$$

The empirical hypotheses about these functions I have attributed to Mitchell imply that

$$f_7' < 0; \quad \frac{\partial f_8}{\partial Y} > 0, \quad \frac{\partial f_8}{\partial r} < 0, \quad \frac{Y}{f_8}\frac{\partial f_8}{\partial Y} < 1$$

(to assure that velocity changes in the same direction as income); $f_9' > 0$, and $f_{10}' > 0$.

From equations (17) and (18),

$$D = f_8(Y, r) \cdot f_9(Y), \tag{20}$$

$$H = f_8(Y, r)[1 - f_9(Y)]. \tag{21}$$

Substituting from equations (20) and (21) into (15) gives

$$R = \frac{m - f_8(Y, r)[1 - f_9(Y)]}{f_8(Y, r) \cdot f_9(Y)}. \tag{22}$$

Substituting from equations (16) and (22) into (19) gives

$$\left.\begin{aligned} r = f_{10}\Big\{ & f_7(Y) \\ & - \frac{m - f_8(Y, r)[1 - f_9(Y)]}{f_8(Y, r) \cdot f_9(Y)} \Big\}, \end{aligned}\right\} \tag{23}$$

[91] Mitchell discussed in considerable detail changes in m, but he concluded that they play little systematic role in the cyclical process. Increases in m, he argued, tended to prolong expansions and decreases to prolong contractions.

an implicit equation connecting Y and r. From equation (23),

$$\left.\begin{aligned}\frac{dr}{dY} = \frac{f'_{10}}{f_9\left(f_6 f_8^2 - m\,\frac{\partial f_8}{\partial r} f'_{10}\right)} \\ \times\left[m f_9 \frac{\partial f_6}{\partial Y} + f'_7 f_8^2 f_9^2 - f_8 f'_9 \right. \\ \left. \times (f_8 - m)\right].\end{aligned}\right\} \quad (24)$$

From the conditions on the various derivatives, the fraction in front of the bracketed expression is positive, the first term of the bracketed expression is positive, and the other two terms negative. These last two terms reflect the changes in liquidity preference and in the ratio of currency to deposits. If these responses did not occur, the last two terms would be zero and $(dr)/(dY)$ definitely positive. The existence of these associated responses reduces the size of $(dr)/(dY)$ and, indeed, could make it negative. This possibility is ruled out only by Mitchell's empirical finding that short-term interest rates do conform positively to movements in aggregate activity.

Since no lags have been introduced into these equations describing the response of the monetary sector, they cannot alone generate cyclical movements. Of course, some lags are implicit in these equations, since otherwise a discrepancy between R and R^* would be impossible.

To generate cyclical movements, these monetary responses need to be combined with the lag of investment expenditures behind investment decisions. This lag, together with the dependence of investment decisions on the rate of interest, can be expressed by

$$I = f_{11}(r_{-1}), \quad (25)$$

where $f'_{11} < 0$. To keep this the only lag, suppose

$$C = f_1(Y), \quad (2)'$$

and substitute equations $(2)'$ and (25) into (1), which yields

$$Y = f_1(Y) + f_{11}(r_{-1}). \quad (26)$$

But equation (23) gives r_{-1} as a function of Y_{-1} so (26) is a difference equation from which

$$\frac{dY}{dY_{-1}} = \frac{f'_{11}\,\frac{dr_{-1}}{dY_{-1}}}{1 - f'_1}. \quad (27)$$

From (24), $(dr_{-1})/(dY_{-1})$ may be taken positive. f'_{11} is negative, and f'_1 can be taken less than unity, so $(dY)/(dY_{-1})$ is negative, a necessary condition for (26) to yield cobweb cycles.

Note 5 (to Sec. III, e).—We can combine the partial models of the preceding notes by replacing investment equations (13) and (25) by a single equation generalizing the two, say,

$$I = f_{12}(P_{-1} - B_{-1},\ r_{-1}). \quad (28)$$

This yields a system of ten equations in ten unknowns consisting of (28), (1), (2), (6), (7), (15), (16), (17), (18), and (19). The final difference equation yielded by solving these equations is

$$\left.\begin{aligned}Y = f_1(Y_{-1}) + f_{12}[f_3(Y_{-2}) \\ - f_4(Y_{-2},\ Y_{-1}),\ r_{-1}(Y_{-1})],\end{aligned}\right\} \quad (29)$$

where $r_{-1}(Y_{-1})$ is given by (23). From this equation, and the conditions placed earlier on various derivatives, $(\partial Y)/(\partial Y_{-1}) > 0$ and $(\partial Y)/(dY_{-1})$ is of uncertain sign, results that are compatible with the generation of cycles.

It should be noted that equation (28) does not allow for the influence on investment of changes in profits associated directly with changes in the physical volume of trade, or of changes in the cost of constructing capital goods reflecting changes in the level of output of the capital goods industries, or of the divergence among the profit experiences of different firms—all factors that Mitchell stressed. The first of these could be taken into account by including $(Y_{-1})/(P_{-1})$ as an additional variable in f_{12}, the second by including I_{-1}. The first step would not change the order of the difference equation or the conclusion about the signs of its partial derivatives; the second would broaden the range of possible results. It is more difficult to take account of the third factor in any simple way.

Finally, it may be worth noting explicitly that the range of possible results, particularly with respect to the kinds of cycles that could be generated, would almost certainly be widened if the model were generalized by dropping the highly restrictive assumption that all lags are of the same duration and equal to one time unit.

DISTRESS, RELIEF, AND DISCONTENT IN THE UNITED STATES DURING THE DEPRESSION OF 1873–78

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DURING the week of September 13, 1873, the financial market of New York City suffered a series of shocks through the suspension of payments by several banking firms, chief among which was Jay Cooke and Company. By Saturday, September 20, a full-fledged panic had developed, and the New York Stock Exchange was closed for ten days. The New York City banks, serving as the central reserve depositaries of the national banking system, also came under the heavy pressure of cash withdrawals by country banks. Through their clearing-house, established in 1853, the city banks promptly resorted to the issue of clearing-house certificates for the settlement of balances among themselves, and they agreed to pool their reserves of legal-tender greenbacks in order to meet essential cash payments. Extraordinary evidence of the seriousness of the crisis was supplied by the hurried visit of President Grant and his Secretary of the Treasury, W. A. Richardson, to New York City, where they spent Sunday, September 21, in conference with bankers and merchants. Although refusing, for lack of legal authority, to release the Treasury greenback reserve of forty-four million dollars, they undertook to help relieve the stringency by the limited purchase of federal bonds.[1]

The immediate circumstances and the initial manifestations of the crisis were thus chiefly financial, and they resulted in the revival of controversial issues and remedies, affecting both contemporary banking practices and national monetary policy. The great concentration of funds in New York City, attracted by the lure of lucrative interest rates, became a particular object of criticism, since it had fostered an unhealthy and unstable diversion of capital into speculative channels. "Is it surprising," so ran the warning in the *Bankers' Magazine* already in May, 1873, "that capital concentrates here from the wilds of Maine, the recesses of Connecticut, the prairies of the West, or the tobacco fields of the South, to be used at one or two per cent per month, instead of six per cent at home? . . . We caution our country bankers to keep a healthy reserve at home, and not to trust too large a fund in Wall Street on 'call.' "[2]

Such commentary merely pointed up the intimate and sensitive interrelation-

[1] For a contemporary account and criticism of the role of the New York banks see *Bankers' Magazine*, XXVIII (October, 1873), 308 ff. For more circumstantial and comprehensive treatments of the financial panic see Max Wirth, *Geschichte der Handelskrisen* (3d ed.; Frankfurt-am-Main, 1883), pp. 450 ff., 540 ff., especially in its world-wide scope and perspective; and O. M. W. Sprague, *History of Crises under the National Banking System* (61st Cong., 2d sess.; Senate Doc. 538 [Washington, D.C., 1910]), pp. 29 ff.

[2] Quoted in Sprague, *op. cit.*, p. 30; for a contemporary critique of banking and monetary policy see "Why the New York Panic Happened at This Particular Moment," *Economist* (London), XXXI (September 27 and October 4, 1873), 1174 and 1201; for a more general coverage of the issues see J. Dorfman, *The Economic Mind in American Civilization* (New York: Viking Press, 1949), III, 15 ff.

ships through which the financial shocks were quickly communicated from New York City to other sections of the country, to be accompanied by similar suspensions and resort to emergency measures of monetary relief. Premonitions and tremors of financial pressure had been felt intermittently during preceding years, despite apparently continued prosperity. The first phase of what was to become, according to Max Wirth, a universal crisis occurred in Austria as early as May, 1873, thence extending to Germany, where it brought the speculative boom, fed by the great Franco-Prussian War Indemnity, to an abrupt end. The tightened European market for American securities was a major factor in producing panic in the United States, and the swelling tide of pressure spread virtually around the world.

What had, however, begun as a financial panic, currently minimized in familiar language as "excessive alarm from causes theorized to be but temporary and of exaggerated importance," rapidly developed into a prolonged period of industrial and business depression, lasting until 1879; according to D. A. Wells, the noted economist, it even extended into the 1880's, after a brief interlude of revival between 1879 and 1881.[3] Thus was precipitated a major example of what Max Wirth aptly labeled "die soziale Krankheit," whose symptoms and consequences were manifold and widespread, affecting all classes. Apart from its worldwide character, the Great Depression of the 1870's was especially significant in the United States, still recovering from the effects of civil war and in the process of building a great industrial and urban superstructure upon an agrarian foundation. Both foundation and superstructure were shaken by a depression which at once revealed the stresses of an expanding economy and intensified the uneven effects of wartime and postwar changes upon the balance of agrarian and industrial interests. The circumstances of rapid urban industrial development combined with the distress of prolonged depression to produce mass discontent and to foster the fermentation of radical economic and social doctrines, in which indigenous elements were blended with newly imported European theories and influences. Out of these emerged a complex pattern of political and social movements, some of which were even magnified by the sharpened fears flourishing in depression into the vague shape of a Communist scare, one of the earliest in American experience.

Inadequate statistical data hamper any attempt at precise measurement of the scope of the depression of the 1870's and its accompanying distress. The most comprehensive estimate available, calculated on the basis of six major series, including pig-iron and coal production, cotton consumption, railroad revenues, merchandise imports, and bank clearings, indicates a decline of 32 per cent between 1873 and 1878, second only in size to a comparable decline of 55 per cent between 1929 and 1932.[4] Clearing-house figures of the New York City banks dropped approximately 40 per cent between 1872 and 1878.[5] The index of railroad stock prices fell nearly 60 per cent, while wholesale commodity prices de-

[3] David A. Wells, "The Economic Disturbances since 1873," a series of articles appearing in the *Popular Science Monthly*, Vols. XXXI-XXXIII (1887–89), *passim;* also by the same author, *Recent Economic Changes* (New York, 1890), pp. 1 ff.; F. W. Smith, *Hard Times, Agricultural Development the True Remedy* (Boston, 1877), p. 6.

[4] A. R. Eckler, "A Measure of the Severity of Depressions, 1873–1932," *Review of Economic Statistics*, XV (May, 1933), 77.

[5] Wirth, *op. cit.*, p. 542.

clined about 30 per cent in the same period.[6] A contemporary series covering some sixty articles in common use, intended to measure the cycle of inflation and deflation since the Civil War, indicated that retail prices, already down in 1873 from their wartime peak, were further reduced by about 20 per cent by 1877.[7]

In the search for causes to account for the prolonged process of deflation, Wells, the contemporary economic analyst, gave particular emphasis to the influence of technological advances and concluded that the "change is more like a revolution in prices than anything which usually happens in an ordinary cycle of prosperity and depression of trade." Quoting Major J. W. Powell, government geologist and noted authority on the Far West, that "all the good public lands fit for settlement are sold," and citing, furthermore, an estimated 10 per cent current surplus of labor, Wells posed the crucial question: "What disposition is it proposed to make of the labor of the country which labor-saving machinery and new methods of business have now . . . made manifestly surplus?" This was but one of various theories that pointed either to overproduction or to underconsumption as a plausible explanation of the existing depression. Wells himself supplied a ready remedy for this dilemma in the expansion of foreign trade: "In shutting out others, we have at the same time shut ourselves in. . . . The house is too small, measured by the power of producing, for those that live in it."[8] In an even more critical vein, that relentless champion of laissez faire and free trade, W. G. Sumner, observed that under the influence of commercial crises people "lose their heads and begin to doubt the economic doctrines which have been most thoroughly established." He decried the notion gaining ground that "the key to successful production consists in knowing how to limit it" and the resulting trend toward combinations which "live in fear and anxiety lest they create too much wealth." It was not strange, therefore, that labor too was adopting similar notions of reducing hours and production.[9]

The impact of depression upon the propertied classes was made manifest through declining values and a rising toll of failures. The reports of Dun and Company, conveniently issued in quarterly form after 1875, indicated a doubling of the number of bankruptcies, from 5,183

[6] E. Frickey, in *Review of Economic Statistics*, X (August, 1928), 118; W. M. Persons, P. M. Tuttle, and E. Frickey, "Business and Financial Conditions Following the Civil War," in *Review of Economic Statistics and Supplements*, II (Cambridge: Harvard University Press, 1920), 16 ff., 39.

[7] Smith, *op. cit.*, p. 12; O. V. Wells, in *Agricultural History*, XI (July, 1937), 237 ff., notes that, while the decline of farm prices paralleled that of industrial prices, expanding production tended to lessen the shock of depression upon agriculture during the 1870's.

[8] D. A. Wells, "How Shall the Nation Regain Prosperity?" *North American Review*, CXXV (July–October, 1877), 126 ff., 287. Significantly, Wells advocated the benefits of closer trade relations particularly with Canada and South America, arguing that a *Zollverein* would in time make Canada "applicants of their own accord for incorporation as States in the American Union, or would enable the United States, if it was deemed expedient, to force them to become such, by the threat not of armed compulsion, but by simply clouding the sun." For theories of overproduction and underconsumption cf. also Wells, "The Economic Disturbances since 1873," *op. cit.*, XXXI, 768; cf. C. D. Wright's first report as United States Commissioner of Labor, *Industrial Depressions* (Washington, D.C.: Government Printing Office, 1886), p. 257; Dorfman, *op. cit.*, pp. 123 ff.

[9] M. R. Davie (ed.), *Sumner Today*, for address on "The Influence of Commercial Crises on Opinions about Economic Doctrines," before the Free Trade Club in 1879, p. 42; also "Errors of the Time," in *Journal of Social Science*, No. 6 (1874), p. 187. Cf. Thorstein Veblen, *The Engineers and the Price System* (New York: Viking Press, 1923), pp. 1–26.

in 1873 to 10,478 in 1878, although the liabilities involved spurted to 228 million dollars as early as 1873 and stood only slightly higher at 234 million dollars by 1878; but they dropped off sharply to less than 100 million dollars in 1879.[10] Contemporary appraisals of the intensity of depression tended to be the more alarming by their very vagueness and contributed to the prevailing pessimism. From various sources, both official and unofficial, came plaintive accounts of distress. Governor Rice, for example, reported that assessed property valuations in Massachusetts had declined by 1877 to the level of 1871, thereby emphasizing the supposed need for public economy, which was repeatedly echoed in the messages of federal and state executives. The treasurer of Iowa testified before a congressional committee investigating the depression in 1879 that between one-third and one-half of the farms in the state were mortgaged and that many were still in danger of foreclosure. From Chicago came the complaint, presented by the secretary of the Board of Trade, that tax arrears were large, despite many forced sales, and that the city was over its debt limit, with three million dollars outstanding in scrip, issued in order to pay creditors and employees. The governor of Rhode Island announced that more savings banks had been placed in receivership in 1878 than in the whole past history of the state, while, in Boston, Archbishop Williams prepared an address to be read in all churches urging people to end the run on the savings banks. In New York and Pennsylvania also savings banks passed through a severe ordeal, resulting in losses and bank closures; Governor Hartranft of Pennsylvania censured savings bank practices and abuses and gave support in 1878 to the current agitation in Congress for a National Postal Savings Fund, which promised "enduring benefits to the people individually and to the nation."[11]

In the pervasive pessimism characteristic of depression, the end seemed out of sight, despite occasional reports of incipient recovery. The *Bankers' Magazine* discussed the prevailing notion of "Capital on Strike," while the *New York Nation* inquired caustically how one would ever know "the bottom" had been reached; on another occasion it called for the formulation of a law of panics and for indexes by which their coming and going could be determined. Even in 1879 the governor of Pennsylvania opened his message in a mood of uncertain hope: "We are still in the gray of hard times, and the giant industries of coal and iron are yet slumbering restlessly; but, everywhere, the stir of awakening confidence betokens the beginning of a more prosperous day." Only as the year progressed was R. P. Porter able to announce "The Dawn of Better Times," in the shape of expanding exports, diminishing failures, a sound currency, and the lesson of "economy" learned in five years of depression.[12]

[10] Wright, *op. cit.*, p. 67; *Economist* (London), XXXV (February 3, 1877), 126.

[11] *Annual Message of Governor J. F. Hartranft of Pennsylvania* (Harrisburg, 1878), p. 7; *Nation*, XXVI (April 4, 1878), 223; *Acts & Resolves of the General Court of Massachusetts* (Boston, 1877), p. 694; *Acts and Resolves of Rhode Island* (Providence, 1879), p. 32; *Causes of General Depression in Labor and Business* (46th Cong., 2d sess. [House Misc. Doc. 5 (Washington, D.C., 1879)]), pp. 41, 366. For an unusual note of economy see the *Message of Governor L. Robinson of New York* (Albany, 1878), p. 21, deploring the high costs of public education and particularly the support of high schools: "We educate them [the children of the poor] in such a way as to make them discontented with their condition. . . ."

[12] *International Review*, VII (November, 1879), 531 ff.; *Message of Governor Hartranft*, p. 2; *Fort-*

Among the many consequences of depression, unemployment was the most disturbing in its contribution to distress and unrest. Its immediate effects embraced an intensified pressure upon existing charitable institutions and newly created *ad hoc* relief agencies, as well as great concern over the most suitable methods of relief. The exact nature and volume of unemployment due to depression became the subject of speculation but remained undetermined and essentially indistinguishable from recognized chronic and seasonal types of unemployment. During the first winter of depression, 1873–74, the New York Society for Improving the Condition of the Poor reported unemployment in the city, on the basis of reports from its four hundred visitors, at 93,750, or approximately one-fourth of all available workers; for the following winter it gave estimates of between 75,000 and 100,000 and quoted press totals amounting to one-third of the city's workers. The Society's rolls reflected this condition by soaring from some 5,000 families on relief in 1873 to 24,000 in 1874, and to an average of more than 20,000 families during the later 1870's.[13]

Similar estimates of unemployment were made for other cities and for the industrial East generally. By 1878 the *New York Nation* expressed impatience with the current wild surmises of unemployment which tended to retard confidence and recovery. Somewhat querulously it inquired what was meant by "lack of employment," and it recommended that the newly appointed congressional committee for investigation into the causes of depression, under the chairmanship of the public-spirited ironmaster, Abram Hewitt, actually determine the extent of unemployment in such industrial cities as Fall River, Scranton, and Pittsburgh. One official and rather belated attempt was made, in 1878, to measure unemployment. This was the accomplishment of Carroll D. Wright, as chief of the Massachusetts Bureau of Labor, the first of its kind in the country. In May, 1878, Wright gave a total for Massachusetts of less than 29,000 unemployed, further declining to 23,000 as "wanting work" by November. On this basis he estimated less than half a million unemployed in the entire country, as compared with current estimates of three million.[14]

Wright's methods and findings on labor conditions did not, however, pass without criticism. Charles Litchman, a shoeworker and labor leader, appeared before the congressional committee of investigation in Boston in 1879 and indicted the Massachusetts Bureau of Labor under Wright as "a political machine which can furnish an argument on any question affecting capital and labor . . . which argument is always in the interest of capital." He advocated the establishment of a national labor bureau that would enjoy the confidence of labor and possess "principles and ability" rather than serve as "a shelf on which to place political favorites."[15]

nightly Review, XXV (June, 1876), 810; *Nation*, October 28, 1875, and October, 25 1877; *Bankers' Magazine*, XXXI (June, 1877), 914. For an early attempt to advance "the science of price cycles" by relating it to a Jupiter cycle of magnetic storms, mixed with a naïve venture in forecasting, see Samuel Benner, *Benner's Prophecies of Future Ups and Downs in Prices* (Cincinnati, 1876), pp. 128 ff.

[13] *Thirty-first Report of the New York Society for Improving the Condition of the Poor* (New York, 1874), p. 29; *Thirty-second Report . . .* (1875), p. 30; *Thirty-third Report . . .* (1876), p. 31.

[14] *Tenth Annual Report of the Massachusetts Labor Bureau* (Boston, 1879), pp. 80 ff.; Wright, *op. cit.*, p. 64; *Nation*, March 11, 1875, and February 14 and August 15, 1878; Wirth, *op. cit.*, p. 558.

[15] *Causes of General Depression in Labor and Business*, p. 425.

A more pointed and comprehensive criticism of Wright's report on unemployment in Massachusetts came from William Godwin Moody, a former Boston printer and labor reformer, who appeared before the congressional committee in 1878, and who subsequently enlarged his analysis of the depression in a volume entitled *Land and Labor*, proposing a comprehensive program of relief and reform. Moody disputed Wright's figures as tortuous and ridiculously low, and he offered instead the rather startling thesis that only war had provided full employment, while peace had "disemployed" millions, amounting during the depression to perhaps half the working population either wholly or partially unemployed. Moody advocated the drastic remedy of a national six-hour working day, moved up or down in accordance with the findings of a National Bureau of Labor that enough were employed and enough was produced to provide all "with a sufficiency of necessaries and comforts of life." With the addition of agrarian and tax reforms, Moody emphasized that his program was neither "socialism nor communism"; it was simply action rather than "non-action" for the promotion of the "general welfare of the United States."[16]

However controversial its extent, unemployment was real enough to generate an immediate problem of relief and to precipitate serious social unrest and agitation. In a typical industrial city like Troy, New York, as depression made itself felt during the winter of 1873–74, the press combined pleas for help with warnings that the soup houses were attracting the lazy and the pauper; and it urged a wise organization of charity: "In the name of God feed, in the interest of humanity devise some means to reform." The expanding activities of soup distribution were reported daily as a major item of news and even with an occasional note of levity: "Business at the soup house continues lively, and every day proves more and more the necessity of the institution." Notice was given that "the ladies plan to furnish either salt fish, oyster soup, or fish chowder for Fridays hereafter."[17] In other cities the problem of relief was met in a similar manner; in the larger cities, however, it was complicated by organized demonstrations of the unemployed, accompanied by extravagant demands. In Boston, for example, the idle workers petitioned the city to provide work by building larger public markets, more adequate reservoirs, and other needed improvements, to be paid for with scrip; but Mayor Cobb rejected the program as injurious to the city's credit.[18] Chicago witnessed a struggle between the Chicago Relief and Aid Society and a Socio-political Association, described as an "anarchist" group, over the distribution of a $700,000 relief fund left over from the fire of 1871; a kind of run was organized on the Aid Society by applicants for relief. In addition, a demonstration by some twenty thousand persons demanded public works from the Common Council.[19]

[16] W. G. Moody, *Land and Labor* (New York, 1883), pp. 130, 253, 307; *Depression in Labor and Business* (45th Cong., 3d sess. [House Misc. Doc. 29 (Washington, D.C., 1878)]), pp. 164 ff. Moody also quoted approvingly Herbert Spencer's lecture on "The Gospel of Relaxation," advising Americans against "Intemperance in Work."

[17] *Troy Morning Whig*, January 1, 3, and 5 and March 20, 24, and 25, 1874, *et passim; Troy Daily Press*, November 24 and December 23, 1874, *et passim*.

[18] Reported in *Troy Morning Whig*, January 13, 14, and 15, 1874.

[19] L. H. Feder, *Unemployment Relief in Periods of Depression, 1857 to 1922* (New York: Russell Sage Foundation, 1936), pp. 52–53, 62 ff.

Similar mass meetings of the unemployed were held in New York City during the winter of 1873–74; one of these precipitated a collision with the police in what became known as the Tompkins Square Riot, which was denounced as a denial of freedom of assembly. The New York Society for the Improvement of the Condition of the Poor reported the incident with great alarm as the mischievous product of "well-known Communists, Internationalists, and Freethinkers, with a sprinkling of sympathizing natives." As a result cries had been raised for "a complete overthrow of the social and political system" and to "hang the thieves and robbers in Wall and Broad Streets." An ominously named Committee of Public Safety, claiming to represent the unemployed, scattered handbills proposing, "as a measure of safety to the city, that work and pay for the same be immediately furnished . . . that salaries be limited to $5,000 a year, and that a tax be laid on surplus wealth, so as to limit its accumulation at a definite point." The New York Society for Improving the Condition of the Poor used the occasion to deplore the "outgush of morbid sympathy," in the form of free lunches and free dormitories, as offering an invitation to tramps and encouragement to workers to stay out on strike against the reduction of wages and as contributing to the demoralization of the poor.[20] A year later the Society was able to report that wiser counsels had prevailed among the unemployed, despite a renewed threat of revolt. The *New York Nation* was disturbed by the developing struggle between the "Shorthairs" and the "Swallow-tails" in municipal politics over the issue of relief, and it approved the strict enforcement of poll-tax and literacy requirements for voting, as in the case of Boston, in order to stay the trend toward perpetual municipal workshops. The *Nation*, indeed, denounced the universal spread of the "free soup" appetite; and it warned that "free soup must be prohibited, and all classes must learn that soup of any kind, beef or turtle, can be had only by being paid for."[21]

The unhappy experiences with relief during the first winter of depression prompted the summoning of a conference on charities in New York City in May, 1874, under the auspices of the American Association of Social Science. Similar meetings followed in succeeding years at Detroit, Saratoga Springs, Cleveland, and Chicago; by 1878 these had evolved into a permanent association to be known as the National Conference of Charities and Correction. The first gathering of 1874 heard reports on the demoralizing effects promoted by indiscriminate relief. It was estimated that twenty thousand imposter paupers throve on charity in New York City alone; the "relief-houses" were ruining the cheaper eating places in the city; petty crime and street begging by a horde of tramps had increased; and, worst of all, "charity assisted labor in the combat to keep up wages." Moreover, the first attempt to co-ordinate all relief in the city by means of a Bureau of Charities had failed for want of co-operation.[22]

This last was in allusion to the rise and growth of a movement for a more effective organization of charity in a number of American cities. Modeled upon the London and Elberfeld plans,

[20] *Thirty-first Report* . . . (1874), pp. 33, 52 ff.

[21] *Nation*, April 1 and December 23, 1875, and March 9, 1876; *Thirty-second Report* . . . (1875), pp. 51, 60.

[22] *Journal of Social Science*, No. 6 (1874), pp. 74 ff.; No. 8 (1876); No. 9 (1878), *passim*.

its chief recommended features were the employment of district visitors to investigate deserving cases and a central registration bureau for the elimination of duplication and fraud. As early as 1873 such charity organization agencies were initiated in Germantown and Indianapolis as an outgrowth of public relief meetings; in 1875 the Co-operative Society of Volunteer Visitors among the Poor was founded in Boston, followed by a Registration Bureau in 1876. Between 1877 and 1879, charity organization societies were established in Buffalo and Brooklyn, where one-tenth of the population was reported to be on relief, as well as in cities as widely separated as New Haven, Newport, Philadelphia, Detroit, and Cincinnati. In 1882 New York City also achieved a Charity Organization Society on the approved plan, and by 1883 there were twenty-five such societies in the country, amounting to "an uprising of the people in the field of charity," in the somewhat exaggerated language of its historian.[23]

Such measures were, however, merely palliative and scarcely adequate to cope with the discontent stemming from prolonged depression. Broader implications and even exaggerated pessimistic deductions were derived from the situation, as in the case of the *Nation*, which concluded that "the times will probably never be as good again as they have been." The difficulty was that "people are less shrewd and self-reliant, more apt to lean on others and on the government." The poor man was now in politics, and "the more he is coddled in this way the more oppressed he will feel." The issue was thus drawn beween laissez faire and state intervention, and responsibility was laid in part upon the influence of the "New German Political Economy," with its doctrine that the state can work miracles.[24] How to counter this collectivist trend became the theme of many contemporary observers. In the *Atlantic Monthly* an anonymous analyst of "Certain Dangerous Tendencies in American Life" advanced a program of positive "propagandism," which would profit men of property to spend a million dollars in the next three years for the preparation and circulation of broadsides among country newspapers, repeating the simple truths on such topics as debt, paper money, economy, and thrift. A cheap popular newspaper and talks by sound men would be helpful, "not to perplex the brains of the workingmen, but to drive straight at the mark and stop."[25]

A ringing call to return to "the old foundations of American self-government" was sounded in the annual message of Governor Samuel J. Tilden of New York in 1876, which addressed itself to the national scene; in the manner of an available candidate in the approaching presidential election, Tilden deplored the rise of a class of "Tax Con-

[23] F. D. Watson, *The Charity Organization Movement in the United States* (New York: Macmillan Co., 1922), pp. 173 ff.; Feder, *op. cit.*, pp. 44 ff.

[24] *Nation*, September 9 and 23, 1875; September 19, 1878. Note, however, the expression of admiration elsewhere (March 4, 1875) for the German method of consulting "statisticians, lawyers, and professors" in preparing a law: "Barbarians and blatherskites are not allowed to take hold of the legislation of a civilized people, and 'go it blind,' to 'help the party,' or 'ease the market,' or 'move the crops.'" In 1879 E. L. Godkin, editor of the *Nation*, warned that government was already overexpanded and that there was not enough administrative ability available for the needs of either business or government (*International Review*, VI [June, 1879], 687 ff.).

[25] *Atlantic Monthly*, XLII (October, 1878), 385 ff.; see *New Englander*, XXXVIII (January, 1879), 85 ff., for a characteristic jeremiad on "the National decay," the "general stagnation," and "the dislike of stern recuperative theories."

sumers" and protested that "by its ascendancy over opinion acquired in a period of public danger, during which the people formed the habit of following its leadership . . . the federal government has, therefore, practically dominated over all business and all industries." He proceeded to plead for "government institutions, simple, frugal, meddling little with the private concerns of individuals —aiming at fraternity among ourselves and peace abroad—and trusting to the people to work out their own prosperity and happiness."[26]

Academic support for the doctrine of total freedom came principally from William Graham Sumner, who was warmly welcomed as a witness by Abram S. Hewitt, chairman of the congressional committee investigating the depression in 1878: "Having got you, we propose to make the most of you." Sumner expounded his theory of depression, arguing that there was no alternative to natural freedom and no escape from the pains inflicted by depression upon individuals and classes. Society owed no man a living except "in the State prison"; and it was false doctrine that "like cures like" or that more inflation will correct the evils of past inflation. Sumner, however, admitted that "we have got to have a struggle with the great corporations before we get through. . . . We have not yet learned to charter corporations and still exercise the necessary control over them in the public interest." Sumner further advocated the substitution of an income tax for the tariff as relief for the "non-capitalists," provided that the exemption were as low as $1,000 and that no graduated rates be allowed to restrain the energy and the self-denial of the enterprising.[27]

[26] *Annual Message of Governor S. J. Tilden* (Albany, 1876), pp. 48, 58.

Abram S. Hewitt himself also held to the belief that "government interference is the last resort and a poor substitute for other courses, which, in the atmosphere of freedom and intelligence, ought to be effective." In 1876, in his presidential address before the American Institute of Mining Engineers, Hewitt had outlined such a course of voluntary action by proposing the creation of an annual fund of one million dollars in the anthracite coal industry by the levy of five cents on each ton produced. This money was to be spent for benevolent purposes, including schoolhouses, Sunday and night schools, hospitals, and reading-rooms, which might serve to stabilize a "growing and restless population," and help convert "a hell upon earth" into a "terrestrial and a Christian paradise." Such an example, Hewitt believed, would spread to other industries; he warned, however, that "the effort must be as serious and as earnest as is the business of producing the coal" and that the workers "must themselves be associated in the administration of the fund created and expended for their benefit."[28]

In contrast to the welcome and warm champion[illegible] of "laissez faire" were the spokesmen of the "unprosperous" who strained the patience of two successive congressional committees in 1878 and 1879 with their "extreme views." The common theme characterizing their testimony was insistence on the propriety and necessity of positive government action. To Hewitt's question whether "society is improved by having the poorer

[27] *Depression in Labor and Business* (1878), pp. 183 ff., 206 ff.

[28] A. S. Hewitt, "A Century of Mining and Metallurgy in the United States," *Transactions of the American Institute of Mining Engineers* (Easton, Pa.), V (1877), 183 ff.; see also Allan Nevins, *Abram S. Hewitt* (New York: Harper & Bros., 1935), pp. 410 ff.

members aided," William A. Carsey, self-described bricklayer, editor, and spokesman for the Greenback Labor party, replied that it was "always improved. It is the best government that takes the best care of its people." Disclaiming socialism, Carsey argued that "the Working Classes are not opposed to the centralization of power in the hands of their own servants at Washington." Charles Sotheran, chronicler of early American socialists, protested against the scoffing attitude of the committee. The government must do these things, by amending the Constitution if necessary, or "the people will take it into their own hands." The Committee chairman, Hewitt, spurned this "foreign idea" and argued that the present Constitution was sufficient.[29]

A wealth of proposals for relief by governmental action was presented both inside and outside the congressional committees. Many of them related specifically to unemployment and the problem of surplus labor. Andrew Van Tuyl, superintendent of the New York Plaster Works, who also disclaimed radicalism, offered a typical program. Two million workers were without steady employment, and many were "tramping" the country looking for work and bread. They had been long patient but might not remain so. Hence the remedy lay in a compulsory eight-hour working day; in addition, there should be public works for the idle at lower wages and an asylum for the hungry and homeless in every county. Funds for these purposes should be raised by means of an income tax rising to as high as one-third on incomes of over $50,000. Charles B. Litchman, shoeworker and labor leader in Boston, waxed eloquent over the prospect that "the time will come when mankind will have two Sundays in the week . . . one of them to devote to himself, the other to devote to his God. . . . That may appear radical and theoretical . . . but I think it is perfectly logical." A. R. Parsons, who described himself as "an active member of nearly every industrial or trade organization" in Chicago, and who became the central tragic figure in the trials growing out of the Haymarket Square Explosion in 1886, also demanded that Congress establish the eight-hour day or "the workers in world union will do it." This was only the start, according to Parsons; he envisaged an ultimate four-hour day; in the meantime, reduction of hours must continue until "the ingenuity of man will no longer be able to supply his wants by machinery to which the motive power of steam or electricity can be applied."[30]

With the eight-hour day were associated other proposals, some of which harked back to earlier crises; and they were to acquire familiarity through repetition and eventual acceptance. Among them were demands for a federal Bureau of Labor Statistics and for the financing of public works by means of government credit. Adolph Douai, representing the young Socialist Labor party, founded in 1876, offered the congressional committee his pamphlet entitled *Better Times*, containing a sixteen-point program.[31] It included, among others, legalization of the rights of labor to form unions and to strike, industrial accident compensation, government banking and insurance, as well as federal aid for education, woman

[29] *Depression in Labor and Business* (1878), pp. 54 ff., 151.

[30] *Ibid.*, pp. 111 ff., 124; *Causes of General Depression in Labor and Business* (1879), pp. 47, 192, 432.

[31] *Depression in Labor and Business* (1878), pp. 30 ff.; Adolph Douai, *Better Times* (Chicago, 1877), p. 31.

suffrage, the recall, referendum, and minority representation.

The paper-money issue was the subject of bitter controversy during these years of depression, even after it was apparently disposed of in 1875 by the provision for resumption, effective in 1879. It was linked with a policy of price stabilization by David J. King, a manufacturer of straw hats in Boston, in a manner reminiscent of proposals in earlier depressions. Arguing that constant purchasing power was the criterion of honest money rather than the fluctuations which favored shrewd manipulators, King advocated the establishment of a commission to follow the price changes of a number of staple products, as well as the trends of bank loans and discounts. An initial Treasury currency of 750 million dollars might then be varied as needed, in order to prevent deflation and to preserve a stable relationship between money and property values. A similar plan for honest money by tying it to a stable price level was offered to the committee by H. H. Bryant, a wholesale clothier of Boston, who charged that English bankers had spent half a million dollars to influence resumption legislation. Only a domestic national currency, freed from foreign domination, could provide protection for the American system and indeed serve in place of a tariff.[32]

Peter Cooper, the Greenback party candidate for the presidency in 1876, also appeared as a witness before the congressional committee in 1879 to plead the cause of a people's money, as against the selfish interests of the English bankers and their American allies, who wanted to be paid in gold. He outlined a program by which the federal government would issue paper money to the states at 1 per cent interest; these in turn would issue it to the counties at 2 per cent, and the last would lend it to the people at 3 per cent.[33] This was only one example illustrating the persistent popularity of public credit schemes, represented best by Edward Kellogg's *A New Monetary System*, first published under a different title in the 1840's, in the wake of the depression following 1837, and reissued in the fifth to eighth editions between 1874 and 1883 alone.[34] The *Nation* thundered in 1875 that "the seizure of the Government by the inflationists would in fact mean that, for the first time since the Fall of the Roman Empire, the affairs of a vast society had passed into the hands of its most ignorant and unscrupulous class." It commented caustically upon the proposal in the *Cincinnati Enquirer* that the government pay its expenses with paper money for a few months: "Why should we all toil and moil when the Treasury could,

[32] *Causes of General Depression in Labor and Business* (1879), pp. 395 ff. For similar proposals in earlier versions see S. Rezneck, "The Social History of an American Depression, 1837–43," *American Historical Review*, XL (July, 1935), 673; and "The Influence of Depression upon American Opinion, 1857–59," *Journal of Economic History*, II (May, 1942), 14.

[33] *Causes of General Depression in Labor and Business* (1879), pp. 373 ff.; cf. the intense anti-foreign note in the charge that "all the European bankers want is to bind you with a gold chain . . ." (*Depression in Labor and Business* [1878], p. 86).

[34] For the evolution of Kellogg's monetary theories since their inception in the 1840's see the biographical sketch prepared by his daughter for the fifth edition in 1874, and C. McA. Destler, *American Radicalism* (New London: Connecticut College, 1946), pp. 50 ff.; cf. the revival of old land-bank ideas in the mutual banking scheme advocated by Colonel W. B. Greene and sponsored by Wendell Phillips and B. F. Butler in 1875 (W. B. Greene, *Socialistic, Communistic, Mutualistic, and Financial Fragments* [Boston, 1875], pp. 51 ff.); also, for the newer co-operative credit banking scheme on the German plan, see *Bankers' Magazine*, XXX (September, 1875), 210.

if it pleased, foot our bills without loss to anybody?" By 1877, moreover, the *Nation*, ever sensitive to the shifting currents of opinion, deplored the rise of "The Silver Movement." Noting that silver bullion was falling below par, it challenged the constitutionality of recent acts of the Ohio and Illinois legislatures which made silver coins full legal tender for debts. In the same year, moreover, a congressional commission recommended the restoration of silver to full monetary standing, and the struggle for silver was on, replacing the lost battle for greenbacks.[35]

Popular sentiment against the scarcity of money and prevailing high interest rates was reflected in the agitation to retain the usury laws in the face of renewed efforts to repeal them in various states. With it was revived the traditional debate embracing arguments for and against regulation which reached back to Jeremy Bentham. In 1873 the *Albany Argus* hailed the failure of a bill to repeal the usury laws: "Wall Street, aided by 3700 of the most influential names of the State, has been defeated; and the Shylocks who would seize the small profits of struggling enterprise by demanding high rates of interest are thoroughly discomfited. New York has narrowly escaped the fate of Eastern States." In other states, among them New Hampshire, Connecticut, and New Jersey, usury laws were retained or reenacted. In 1876 Senator Morton C. Hunter of Indiana moved to fix a national interest rate of 6 per cent, arguing that the principal cause of depression, "and the one that lies at the bottom of all . . . is the enormous rates of interest that our people have been compelled to pay, and are still paying." To the question why other prices should not be fixed as well, Senator Hunter replied that money was a yardstick for all other prices. Make money cheap, and "all articles of clothing and food will be correspondingly cheap."[36]

With the impact of depression upon creditor-debtor relations, the problem of a bankruptcy law also forged to the front as a political issue after 1873. President Grant recommended the repeal of the Bankruptcy Act of 1867 on the ground that its provision for involuntary bankruptcy on the initiative of a single creditor promoted panic and favored the sacrifice of assets by means of forced sales. Congress, however, merely amended the law in 1874, permitting the composition of debts with the assent of one-fourth of the creditors representing half the claims. This mild prodebtor legislation provoked the opposition of creditors, who complained that it encouraged delay, fraud, and waste of assets, thereby undermining the confidence of capitalists. The Bankruptcy Act thus became a football of politics; and repeal was finally voted in 1878, leaving the country without national bankruptcy legislation until 1898.[37]

In a number of states there was resort to the familiar stay laws for the protection of debtors' assets; and in 1878 the Supreme Court declared such laws an

[35] *Nation*, August 19, 1875; May 10 and 24 and June 21, 1877; *Bankers' Magazine*, XXXII (October, 1877), 287; *Economist* (London), XXXV (March 31, 1877), 352.

[36] For a collection of materials relating to this subject, both historical and contemporary, see *Stringent Laws against Usury the Best Defence of the People against Hard Times* (New York, 1878), esp. pp. 35 ff., compiled by Dr. Nahum Capen, self-designated adviser to state legislatures on usury laws.

[37] C. Warren, *Bankruptcy in United States History* (Cambridge: Harvard University Press, 1935), pp. 114 ff., 184; *Nation*, February 24, 1876, and March 8, 1877; *Depression in Labor and Business* (1878), p. 270.

unconstitutional impairment of contracts. The so-called "Granger laws" for the regulation of railroads were also under fire as an attack on property. In 1875 the *Nation*, for example, challenged the clause in the Illinois constitution requiring that a majority of the directors of a railroad company holding a state charter be citizens of that state. It warned that eastern stockholders wanted protection for their property; if the West wanted easy money, "the best thing it can do is to call off its legislatures and attorney-generals, as Minnesota has so sensibly done, and let the Eastern monopolists alone."[38] From an opposite viewpoint, however, Willard L. Flagg, president of the Illinois State Farmers' Association, expressed the intense sectional antagonism of interests in an address before the New York meeting of the Social Science Association in 1874. Quoting the famous passage from La Bruyère on the oppressed peasants of France, which supplied the theme of Millet's famous painting and through it the inspiration for Edwin Markham's poem, "The Man with the Hoe," at a later date, Flagg defended the current uprising of the western farmers as "an effort to reverse the unwise legislation that has, in the guise of corporate and other monopolies, created, fostered, and perpetuated a Shylock aristocracy, whose nobility compels no nobility, but, insatiate, plunders rich and poor with a cruel impartiality." It was part of an irrepressible conflict, and "as inevitable as the progress of Democracy on the Earth."[39]

In the same period the myth of the free West was also being criticized, and the issue of land monopoly came under debate. The prospect of removing surplus labor to the land provoked sharply opposed views. On the one hand, the New York Society for Improving the Condition of the Poor insisted that, while cities must not make relief too easy, or recognize in any way the foreign idea of a right to work or to subsistence, the West, too, had its unemployed and certainly did not want the chaff from the East. The *Denver News* spurned "the refuse of the great city" and warned that " 'Be it ever so humble, there is no place like home' to starve in with comfort." On the other hand, a writer in the *Boston Advertiser* in 1877 argued that it was "the duty of government, philanthropic associations, and individuals to awaken attention . . . and to devise measures to help people to land ownership." He proposed the establishment of "Boards of Aid to Land-Ownership" in large cities, which would organize colonization companies for "associated migration, not communism, which is repulsive to American habits."[40] George Marshall Sloane, a former lawyer in Chicago but at the time a farmer in Wisconsin, complained to the congressional committee investigating the depression in 1879 that newspaper agitation had stirred the farmers'

[38] *Nation*, April 1, 1875, and May 2, 1878; Warren, *op. cit.*, p. 150; *Popular Science Monthly*, XXXII (December, 1887), 202 ff., quoting from the first program of the Grange adopted in 1874: "We shall endeavor . . . to discountenance the credit system, the mortgage system, . . . and every other system tending to prodigality and bankruptcy. . . . We are not enemies of railroads. In our noble order there is no Communism, no agrarianism. . . ."

[39] *Nation*, January 28, 1875; *Journal of Social Science*, No. 6 (1874), p. 112.

[40] Smith, *op. cit.*, pp. 64 ff.; cf. also R. S. Wright, *Cause and Cure of Hard Times* (Philadelphia, 1878), p. 18, urging that "peace armies be enlisted, instead of war armies. Let the national government enroll men as settlers, regularly, . . . who are to advance in proper order." For the opposite views see *Troy Daily Press*, December 1, 1874, quoting the *Denver News; Thirty-second Report of the New York Society for Improving the Condition of the Poor* (1875), pp. 65, 83.

prejudices against all strangers seeking work, and he cited the severe tramp laws which made it a crime for any man to ask for food at a dwelling. Other witnesses advocated a more effective Homestead Act to provide financial assistance as well as land for the settlement of poor men, and such bills were proposed in Congress.[41]

The fact of the matter was, however, that the rising issue of monopoly in land was stirring popular resentment. In 1877 a writer in the *Radical Review* protested that, while "between labor the parent and property its child there is no conflict, . . . the gravest and most fraudulent usurpation of capital is property in land, which begets rent . . . , ground rent, an inexorable, perpetual claim for the use of land, which, like air and light, is the gift of Nature." In its hearings at San Francisco the congressional committee of 1879 heard complaints against the concentration of landownership and received demands for the equal taxation of all land, in order to make large unutilized holdings unprofitable. This sentiment was echoed in Godwin Moody's account of bonanza farming in the West, with its accompanying class of wandering, landless laborers. It received definitive and passionate expression through Henry George, who wrote his *Progress and Poverty* between 1877 and 1879, as an "Inquiry into the Cause of Industrial Depressions, and of Increase of Want with Increase of Wealth," which proposed the liberation of both capital and labor from the incubus of rent by the single remedy of taxation of land values.[42]

Another critic of monopoly in business also emerged during the depression of the 1870's. As a financial writer for the *Chicago Tribune*, Henry Demarest Lloyd became interested in the collusive relations between the railroads and the Standard Oil Company; and his article, "The Story of a Great Monopoly," was first delivered before the Chicago Literary Club. Rejected by the *North American Review*, it was finally published in the *Atlantic Monthly* in 1881, and the demand reportedly exhausted seven editions. Amplified by subsequent articles, written in the new manner of historical and realistic rather than abstract economics, Lloyd's study of the Standard Oil monopoly was eventually enlarged into the epoch-making *Wealth against Commonwealth* in 1894.[43]

The influence of depression was not confined to verbal grievance and vocal remedy, for which the two congressional investigating committees in 1878 and 1879 provided a sounding board. It made itself felt also in the shattered ranks of labor organizations, as illustrated by the fact that the number of national trade-unions was reduced from more than thirty to nine between 1873 and 1877 and that total union membership by 1878 was estimated at only 50,000. The drastic suppression of the terroristic Molly Maguires in the Pennsylvania anthracite coal area by the methods of espionage and legal prosecution revealed

[41] *Depression in Labor and Business* (1878), pp. 75, 148, 202, 407; C. Danhof, "Economic Validity of the Safety-Valve Doctrine," *The Tasks of Economic History*, December, 1941, p. 102. See *Troy Morning Whig*, January 8, 1874, for a communication from the International Workmen's Association, addressed to the Honorable B. F. Butler, and recommending a bill for assisted colonization, under the heading: "They Want To Go West"; also *Atlantic Monthly*, XLIII (May, 1879), 554, for other similar proposals.

[42] G. E. McNeill, *The Labor Movement* (Boston, 1887), p. 608; R. T. Ely, *Recent American Socialism* (Baltimore: Johns Hopkins University Press, 1885), p. 16; Moody, *op. cit.*, pp. 64, 134; *Causes of General Depression in Labor and Business* (1879), p. 310; *Radical Review*, I (November, 1877), 556.

[43] C. Lloyd, *Henry D. Lloyd* (New York: G. P. Putnam Co., 1912), I, 59; H. D. Lloyd, *The Lords of Industry* (New York: G. P. Putnam Co., 1910), pp. 1 ff., 52; Destler, *op. cit.*, pp. 134 ff.

the violent nature of the conflict between employers and labor in one industrial region.[44] In response, however, to the pressure of distress and opportunity, the scattered remnants of labor were temporarily rallied into various channels of political action and even became subject to the agitation of an incipient socialistic movement. There was, among other trends, the formation of a National party, which offered a program of industrial and agricultural reforms, including a labor bureau, public works, and the eventual regulation of "the agricultural production of the country—to determine for instance how many sweet potatoes would probably be needed each year, so that the market might not be oversupplied." It even visualized an international union with an international money, which will "lead to the gradual disuse or comparative abolition of nationalities, and the association of the people of the whole world for the government of the whole world." By the fusion of labor with the contemporary agrarian and greenback movements, there was founded after 1876 a kind of popular front in the shape of the National Greenback Labor party, which showed its greatest strength in 1878, with over one million votes cast and fourteen seats won in Congress. The Indiana platform of the party denounced equally "the red flag communism imported from Europe . . . and the communism of the national banks, of the bond syndicates, and of the consolidated railroad companies."[45]

[44] J. R. Commons *et al.*, *History of Labor in the United States* (New York: Macmillan Co., 1921), II, 175 ff., 195; N. J. Ware, *The Labor Movement in the United States, 1860–95* (New York: D. Appleton & Co., 1929), pp. 51 ff.

[45] "The National Party and Their Program," *Atlantic Monthly*, XLII (November, 1878), 521 ff.; N. Fine, *Labor and Farmer Parties in the United States* (New York: Rand School of Social Science, 1928), p. 67; Commons *et al.*, *op. cit.*, p. 240.

Another manifestation of renewed labor activity was the spread of the hitherto local and dormant Knights of Labor by the formation of district assemblies outside Philadelphia and by the adoption of a "Declaration of Principles" at its first General Assembly in 1878 at Reading, Pennsylvania. Its initial secrecy, viewed with alarm against the background of the troubled times, prompted Allan Pinkerton, the founder of the labor-spy system, to describe the Knights of Labor in his vitriolic compilation entitled *Strikers, Communists, Tramps, and Detectives* "as probably an amalgamation of the Molly Maguires and the Commune." Pinkerton further noted the outgrowth "during the past few years, under the leadership of agents of the Commune, . . . of numerous organizations which have the same object in view, . . . namely, the destruction of all government by the ballot, and if that shall fail, by force when the proper opportunity arrives."[46]

Pinkerton's allusion was to the increased activity of a relatively small number of socialistic agitators and advocates, many of them recent arrivals from Europe, who were exploiting the opportunity offered by depression to convert the remnants of the International Workingmen's Association into an American movement. Their efforts materialized in 1876 at a Philadelphia Congress in the guise of a Workingmen's party, which was in turn renamed the Socialist Labor party in 1877, the first appearance of an avowedly socialistic party on the American political scene.[47] The congressional

[46] McNeill, *op. cit.*, p. 404; Allan Pinkerton, *Strikers, Communists, Tramps, and Detectives* (New York, 1878), p. 88.

[47] Fine, *op. cit.*, pp. 88 ff.; Commons *et al.*, *op. cit.*, pp. 219 ff., 290; T. H. Greer, *American Social Reform Movements* (New York: Prentice-Hall, Inc., 1949), pp. 38 ff.

committee of 1879 heard several of its leaders or so-called "gate-money men," including one Benjamin Sibley, who testified that the Chicago membership was about six hundred, of which only 10 per cent was American, and the rest predominantly German, Scandinavian, Slavic, and Irish; but that the party had received nearly 12,000 votes in the recent municipal elections.[48] Chicago, moreover, early witnessed the split of the movement into moderate and militant branches, and the latter came under the influence of anarchist syndicalism during the 1880's, culminating in the Haymarket affair of 1886. Already in 1875 Chicago had become the seat of the first Lehr und Wehr Verein, whose object was announced in a German-language newspaper: "Inasmuch as the bourgeoisie of this place are building up a servile militia with its power directed against the workingman, the workingmen . . . should join this organization and willingly give the few dollars necessary to arm and uniform themselves. When the workingmen are on their guard, their just demands will not be answered with bullets."[49]

In New York City evidence of similar agitation was revealed in the manifesto issued in 1877 by the Bread-Winners' League: "Citizens, organize. Unite with us and we will redeem the nation from bond, bank, and railroad monopolists by converting every city in this vast, rich, idle country into an active workshop."[50] In a more practical way, Samuel Gompers, as a rising young labor leader, was disturbed by the infiltration of "so-called Communists, . . . perfectly willing to use human necessity as propaganda material," and he concluded that the resulting sensationalism turned all organized society against the labor movement "and nullified in advance normal, necessary activity." With Adolph Strasser, who argued the case for pure and simple unionism before the congressional committee in 1878, Gompers then became confirmed in his belief that the trade-union "had to acquire a new meaning before it became an industrial agency." Both industry and unionism were in their "fledgling period" and must cease to be planless and uncouth.[51]

Uriah S. Stephens, first master-workman of the expanding Knights of Labor, was also alarmed by the infiltrating tactics of the socialists, and he warned a correspondent in 1879: "You must not allow the Socialists to get control of your assembly. They are simply disturbers, and only gain entrance to labor societies that they may be in better position to break them up. You cannot fathom them, for they are crafty, cunning, unscrupulous. . . . They rush to every gathering and attempt to man or officer it. Having done that, and having driven all decent men away, they are supremely happy in the delusion that they have spread their ideas still further."[52]

The combination of depression, labor unrest, and socialistic agitation provided a lurid setting for the great railroad strike in July, 1877, which stirred up passions and created an unprece-

[48] *Causes of General Depression in Labor and Business* (1879), p. 159.

[49] Fine, *op. cit.*, p. 106; Ely, *op. cit.*, p. 21.

[50] *Appleton's Annual Cyclopaedia* (New York, 1877), p. 750.

[51] Samuel Gompers, *Seventy Years of Life and Labor* (New York: E. P. Dutton & Co., 1925), I, 93 ff. Note that already in July, 1877, at the time of the great railroad strikes, a mass meeting held under the auspices of the New York Amalgamated Trades and Labor Union, under the leadership of Strasser and Gompers, adopted a resolution calling upon "all workingmen to organize in trade unions and to aid in the establishment of a national federation of trades, so that combined capital can be successfully resisted and overcome" (*ibid.*, p. 141).

[52] Fine, *op. cit.*, p. 47.

dented panic of public opinion. The provocation for the strike was a series of wage cuts, coupled with other money-saving and labor-cutting retrenchments in the operation of trains. Three of the four trunk lines in the East were tied up by the strikes, and for more than a week violent clashes occurred at a number of junction points in Pennsylvania, New York, Maryland, and West Virginia, which required the use of state militias and even federal troops. The bloodiest conflict took place at Pittsburgh, where the state military forces were besieged in a railroad roundhouse; and deaths totaled fifty civilians and five soldiers, in addition to a hundred or more wounded. In Chicago and St. Louis, moreover, something like general strikes developed, affecting factories as well; and socialists called mass meetings and arranged for the election of factory delegates to a general strike committee.[53]

The labor disturbances of 1877 thus constituted the climactic event of the depression and precipitated a violent outburst of alarm and threat that reflected a growing fear of class conflict and the "red spectre of communism." The anarchist, Peter Kropotkin, commended the railroad strikers, despite their failure, as an example "to the proletariat of Europe. . . . The blood of our brothers of America shall not have flowed in vain." Richard Ely, in his pioneer study *Recent American Socialism*, noted that "Get ready for another 1877" and "Buy dynamite for a second 1877" had become the slogans of violence and that an article in *Truth, a Journal for the Poor*, offered advice on "Street Fighting . . . Military Tactics for the Lower Classes." Ely explained the division between the "Blues" and the "Reds" as constituting the moderate and radical branches of socialism and cautioned the public that Bismarck's repressive measures had failed and that "Ameliorative Measures" might be a better remedy.[54] Henry James, another contemporary historian of American socialism, also observed that the riots of 1877 had "fitted exactly into the popular notion of communism," and one of their major consequences had been the creation of sections in more than fifty cities as "nurseries of socialism."[55]

The prevailing alarm communicated itself through both official and unofficial channels. The *New York Times* outdid even Pinkerton in describing the strikers as "hoodlums, rabble, bummers, looters, blacklegs, thieves, tramps, incendiaries, enemies of society, brigands, rapscallions, riff-raff, felons and idiots." The governors of New York, Rhode Island, and Pennsylvania deplored the frequent and costly resort to the militia for the restoration of order; but they recommended, nevertheless, reorganization and increased expenditures for this purpose.[56] Cyrus McCormick wrote to his son at Princeton about "the muttering of the coming storm" and warned him that his generation would have to deal

[53] *Message of Governor Hartranft*, pp. 9 ff.; *Message of Governor L. Robinson*, p. 16; *Nation*, August 2, 1877; *Economist* (London), XXXV (July 28, August 4, and December 29, 1877), 879, 912, and 1547; Fine, *op. cit.*, p. 34; Commons *et al.*, *op. cit.*, p. 185; Allan Nevins, *Emergence of Modern America* (New York: Macmillan Co., 1927), pp. 390 ff.

[54] Ely, *op. cit.*, pp. 21 ff., 61; R. Hunter, *Violence and the Labor Movement* (New York: Macmillan Co., 1914), p. 63; Fine, *op. cit.*, p. 108; S. Logan, *A City's Danger and Defence* (Scranton, Pa., 1887), pp. 9 ff.

[55] H. A. James, *Communism in America* (New York, 1879), pp. 28 ff.

[56] *Acts and Resolves of the General Assembly of Rhode Island* (Providence, 1877), p. 7; *Message of Governor Hartranft*, pp. 21 ff.; H. Harris, *American Labor* (New Haven: Yale University Press, 1939), p. 225; Pinkerton, *op. cit.*, p. 215; *Message of Governor L. Robinson*, p. 21.

with the problem. In 1877 McCormick bought equipment for the Second Regiment of the Illinois militia, which had "won great credit for its action during . . . disturbances and can be equally relied on in the future." In 1878 Chicago businessmen formed a Citizens' Association for their mutual protection and raised a secret fund for the equipment of the Sixth Regiment with a battery; and Cyrus McCormick was urged to contribute liberally, since it was of "vital importance for our preservation."[57] In Cleveland, John Hay was shocked by the strikes of 1877 into an awareness that "a profound misfortune and disgrace had fallen upon the country." He was moved to write: "We are not Mexicans yet—but that is about the only advantage we have over Mexico." His sentiments eventually germinated into a novel, published anonymously as *The Breadwinners*, which indicted the alarming new phenomenon of labor politics and politicians catering to "the dangerous classes."[58]

Fear spread to religious circles as well, and Joseph Cook, a popular minister whose *Boston Monday Lectures* had wide circulation, condemned the "secret socialistic societies," composed mainly of foreigners and infidels; he gave notice to "the lawless classes at the bottom of our cities that, if they thoroughly alarm capital in this country, it will treat them with as much severity . . . as the public peace may require. We shall keep order roughly here, if necessary; for all Americans are capitalists, or expect to be." Professor Hitchcock of Union Theological Seminary concluded that "today there is not in our language, nor in any language, a more hateful word than Communism. The instant duty of society is to smite it with the swiftness and fury of lightning."[59] On the other hand, the Reverend R. Heber Newton, who was, with Washington Gladden, among the contemporary founders of the new social gospel of liberal Christianity, protested that "communism is a word wildly flung about in our social discussions. It is the stock bogy of our dry nurses of the pulpit, the press, and the platform, whereby they scare children of a larger growth from peeping into the darker places of our social system. . . . It is even mixed up with the late 'complex marriages' of Oneida, and turned into a social diabolus, a name utterly shocking to polite ears."[60] The lofty humanitarian spirit of the new gospel was ably exemplified by President Chadbourne of Williams College, who argued that the alleged elevation of the masses had thus far been "the result of the chance conditions of our new fertile country rather than of the superiority of any system of labor or social order that prevails among us." But now there was "a cry for bread in a land of plenty. . . . Men are without employment and look with jealous eyes upon capital as the oppressor, while capital is paralyzed by a sense of inse-

[57] W. T. Hutchinson, *Cyrus Hall McCormick* (New York: Appleton-Century Co., 1935), II, 615 ff. Colonel Thomas Scott, president of the Pennsylvania Railroad, urged the need of adequate federal forces for future use in such cases (*North American Review*, CXXV [September, 1877], 357).

[58] Introduction by C. L. Hay, son of John Hay, to *The Breadwinners: A Social Study* (New York: Harper & Bros., 1916).

[59] J. Dombrowski, *The Early Days of Christian Socialism in America* (New York: Columbia University Press, 1936), p. 6; Joseph Cook, "Secret Socialistic Societies," in *Boston Monday Lectures* (Boston, 1881), p. 47.

[60] R. H. Newton, "Communism," in *Social Studies* (New York, 1887), p. 299; C. H. Hopkins, *The Rise of the Social Gospel in American Protestantism, 1865–1915* (New Haven: Yale University Press, 1940), pp. 24 ff.; H. F. May, *Protestant Churches and Industrial America* (New York: Harper & Bros., 1949), pp. 79 ff.

curity." To the prevailing opinion that "things will in the end mend themselves," President Chadbourne rejoined that "the principle of action, in the end, must be that men must be cared for, and business must be subservient to this great work." Specifically he urged that "no city tolerate within its borders those who are not fairly housed, clothed, and fed, or that cannot show honest means of living."[61]

As if in reply to this plea, E. L. Godkin, the editor of the *Nation*, cautioned that "the didactic method" of Christianity would not work with socialism, which "is a revolt against all authority," and that to discuss it was to encourage it. In his own editorial column, Godkin criticized even more vigorously the "vague preaching about the wrongs of the poor" as a dangerous trend: "In our time and country both social speculation as well as the power to embody it in practice have ceased to be confined to parlors and dining rooms; it has got into the cabins and shanties, and has a look of possibility and reality there it has never had before."[62]

The alarmed state of mind, stirred by the labor disturbances of 1877, received violent and vehement expression in an article entitled "The Communist and the Railway," by W. M. Grosvenor, financial editor and publicist. Detecting the shadow of communism in such varied manifestations as the Granger laws, the greenback agitation, and the trade-union and labor demands, Grosvenor saw approaching, "by the light of flames at Pittsburgh, a terrible trial for free institutions in this country. The Communist is here . . . and already intelligent men are heard crying for a large standing army." Ominously he warned that "our free institutions will be destroyed by that spirit of communism, if unchecked, but not less surely by a centralization of power to prevent Communistic laws and suppress Communistic societies. . . . It would be simpler to elect Colonel Scott Perpetual President of the United States with the powers of a dictator. . . . We shall surely escape Communism, in that case, because we shall surely take Despotism as better."[63] With the confidence growing out of improved business conditions by 1881, the first report of the Illinois Bureau of Labor Statistics was, however, more reassuring that communism did not belong in this country, since it was based on the idea of retrogression rather than progress. Warning workers that socialism wanted more than high wages, the report reviewed its recent rumbling, concluding that better business would destroy it and that "it will be remembered only as a mad dream of the past."[64]

[61] "The Cry of Labor—What Answer?" *International Review*, V (September, 1878), 577 ff.; see also G. W. Julian, "The Pending Ordeals of Democracy," *International Review*, V (November, 1878), 734 ff.

[62] "Some of the Remedies for Socialism," *International Review*, VI (June, 1879), 676 ff.; *Nation*, July 18, 1878.

[63] *International Review*, IV (September, 1877), 585 ff.

[64] *First Biennial Report of the Illinois Bureau of Labor Statistics* (Springfield, 1881), pp. 163 ff.

ECONOMIC AND SOCIAL POLICY IN DEMOCRATIC SOCIETY[1]

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THE following pages offer a few thoughts on a large subject, a sort of introduction to an introduction. I am concerned with the unsolved and burning problems of our own society in preserving and perfecting its more or less democratic character and mainly with "economic" policy, not rigorously defined but excluding "social" problems outside that field, broadly construed—except as found "necessary." And by policy I mean primarily *political* policy (in "economic" matters); but I must insist as strongly as possible both that moral and psychological conditions are prerequisite to legal action and that the most fundamental things cannot be done by law and administration at all but only by moral forces. In fact, the most vital function of the politico-legal organization is to create in the people the qualities and capacities that make up the democratic spirit and so equip them for democratic living.

A further limitation: Public discussion in this field must lie, or range, somewhere between a sermon denouncing sin and the draft of a legal code, with provisions for administration and enforcement. Considering also my own personal limitations, I feel that in a brief paper my best chance of promoting intelligent discussion is to begin with a little attempt to define sin, by contrast with its opposite here, the democratic ideal, and to relate this contrast to the unalterable facts of life which condition, and limit, the realization of the ideal. First of all, we ought to say "ideals"; for there are many basic values, which are as much conflicting as harmonious, and even singly they are only in a limited degree attainable, in the kind of world in which we find ourselves, through effecting changes that are within human power. Our greatest danger, here and now, is ill-considered action, doing more harm than good. Especially state action, which aims at and sometimes does good in one direction, but too often without counting the greater cost in other values fully as essential. Like Aesop's dog, we may well lose the meat we have by grasping at things beyond reach, or entirely unreal. Russia is but an extreme case of what is going on everywhere, including our own country. Taking "democracy" to mean achievement of particular ends instead of freedom—ends laudable in the abstract—the people keep giving new tasks and more and ever more power to government until presently it will be the master of all instead of the servant. At best, government is the agent by which a voting majority exploits a minority—or curbs it, depending on one's bias. Our need is rightly to balance and combine incompatible things which cannot be measured; hence it is hard for discussion to get much beyond the old cook's recipe—put in enough, but not too much, of this, that, and the other.

It seems best to start with some "historical background," drawn, of course, in sweeping strokes. The democratic idea,

[1] This article is slightly revised from a paper read before a session of the American Political Science Association at its December meeting, 1948.

in our sense, has come into the world very recently and suddenly, historically speaking. Its revolutionary novelty is not generally realized, and the mere fact of abrupt and vast change is a large element in our problem. Proverbially, the young man is in a hurry, and the gods are not. It is impossible, and should not be needful here, to point out the great differences between our conditions and ideals and those of Greek or other so-called "democracies" of the past. Modern civilization as a whole is a "reaction" from medieval conditions, which grew out of the decadence of classical culture after this had lapsed into outright despotism. It is true but hardly complete to describe this decline in Gibbon's famous phrase as the triumph of barbarism and religion; but these and other factors—especially the importation and adoption of the monastic ideal—did make of medieval Europe an extreme example of what has been typical of human society prior to the modern West. That is, it was in an unusual degree based on status, the caste idea, and customary law—all sanctified, hence largely "frozen," by religion. Christianity, originating as a mystery cult, becoming organized on the model of the decaying Roman Empire, and taking form in the Dark Ages, was tied to a past verbal revelation. Its interest was centered not in solving human problems but in salvation for a future life with no problems to be solved. At first the Kingdom was to be miraculously established immediately and on earth; later it was transferred to heaven; and bodily resurrection, though it is still in the creeds, was in practice soon replaced by immortality of the soul. The means of salvation were faith and a few simple rites, associated with a simple, primitive ethic of quietism, tenderness, and submission to superiors. But from a claim to universality its church deduced a policy of ruthless intolerance and proselytism. This inheritance from Judaism was intensified as Christianity triumphed and became the imperial religion, itself imperially organized and claiming supreme political authority. To begin with, the founders had prescribed a virtual anarchism, with love solving all problems, but enjoined complete submission to established authority as a thing of no concern to the believer. In spite of its peculiar sources of power and ostensible objectives, the church's use of power, as fast as it could be obtained, was like that of any absolutistic hierarchy. It was also committed, as eternal and immutable truth, to a primitive, mythological view of the natural world. A little growth of civilization—to which men seem by nature *somewhat* inclined—would shoot such a system to pieces and tend to produce a violent reaction.

So, what naturally happened was a swing of the pendulum far in the opposite direction, a tendency to repudiate tradition and authority, *überhaupt*. The reversal was stimulated by the "Renascence" but would certainly have happened anyway; the "rebirth" aspect is much overdramatized. The modern temper really developed in "backward" northern Europe, with the Protestant "Reformation" as an important incident, following a long sequence of heretical movements; but it affected all fields of life and conduct; and developments in science, politics, trade, and industry are dynamically more important than either religion or literature and the fine arts. I must pass over a few transitional centuries, in which states, under hereditary monarchs ruling by divine right and struggling quite frankly for power, more or less replaced the Western church. The church had ostensibly sought calm

and the spiritual life, but under its own absolute authority--to be extended as far as possible by any means available—and with the usual prerequisites for the managers. The ideological culmination was the rationalistic, but also sentimental, Enlightenment, incubated in England, taken over and carried to an extreme by the French, also strongly influenced by the British American colonies, especially in view of their successful revolt and establishment of a federal republic.

The result was unlike anything seen, or even imagined, before. In the place of eternal verities, given by revelation and taken on faith, by command, came modern science with its dynamic, "eternally provisional" conception of truth as perpetually advancing through critical questioning, shrewd guessing, and testing by observation and experiment. But useful (or destructive) application was both a main test of truth and an intrinsic value, on a par with "pure" knowledge—a double contrast with ancient science. And in place of natural law, stressing conformity and obedience, came natural rights, stressing free activity, exploration, adventure, in both the natural world and the world of ideas. Above all, *progress* should be achieved through intelligent, mutually voluntary co-operation, under the supreme moral principle that each shall respect the right of all to the same freedom he claims for himself. Religion should be the affair of individual conscience and of free association for any desired ritual observances.

Politico-legal coercion could, it was thought, be confined to two sets of functions, one negative and one positive; first, to police wherever necessary the various freedoms. This policing referred primarily to economic co-operation through exchange, where men's interests seemed to clash most directly—seemed, after a century and a half of religious wars had shown that no one "Christian" sect was strong enough to suppress and swallow the rest, and forced men to see that they might live and work together without unanimity on religious dogma and ritual. Second, the positive function of the state would be itself to act as a co-operative association wherever by general agreement political action would get useful things done that would otherwise be neglected or less well done through private dealings between producers and consumers of particular goods and services, under the control of market competition. (Use of the word "competition" in economics is a historical calamity; there is no "rivalry" in an ideal market, and little in actual ones, especially in comparison with other modes of association, notably politics, where also it does not theoretically belong; a market is simply organized provision for everyone to co-operate freely with the "other" who offers or accepts the most favorable terms.)

Anyhow, the religious wars, and the dynastic wars which followed them, did come to an end, as did the more political and ideological wars precipitated by the French Revolution. With the age of freedom, of liberalism, we confront what is on its face perhaps the greatest anomaly of history. In the nineteenth century, the predictions of the early liberals were more than fulfilled. But the most unexampled progress, and especially progress of the masses, in political and cultural participation as well as in "material" comfort, security, luxury, went hand in hand with just as unexampled demand for violent revolution—the destruction of all existing social order—because, forsooth, the workers, the bulk of the people, had nothing to lose but their chains.

The movement of revolt was led by "intellectuals"; the masses harkened; and, presently, over much of this Western world, cultural, economic, and political freedom gave place to despotism as complete and as ruthless as has been seen anywhere at any time. And the countries where formal democracy still lives are moving toward the brink of the abyss if they are not in the process of falling into it. An understanding of this new "reaction" is the first prerequisite for formulating "an economic and social policy" for democracy, specifically our own.

First, much of our problem is no problem or arises from plain stupidity or sheer perversity. Witness the protective tariff and monetary inflation. Everyone professes to believe in foreign trade and price stability; but the majority vote for tariffs and for inflationary measures, and in our own generation there is more of both than was thought possible by Adam Smith or Alexander Hamilton or the Continental Congress. The remedy was supposed to be "education", but we have prescribed and forced enormous doses of that, from the three R's to analytical economics; and on these issues economists have hardly disagreed. Hamilton, who died young, was still in his prime and Smith had been dead but a few years when Friedrich Schiller coined the expression, "Against stupidity the gods themselves contend in vain." Education is perhaps the greatest disillusionment of our age. If there is any difference in the way they vote, the members of a university faculty seem even more ready than the man in the street to plump for nostrums, promises of ends that sound good, without critical scrutiny of the efficiency of proposed means or appraisal of the cost or possibility of achievement. And specialists in other fields, including social sciences, are free in telling the public that the economist who utters a warning is either a born or bred reactionary or is in league with the "interests." The educated and the ignorant alike vote for stupid and arbitrary laws like rent-fixing and other price controls, hoping to suppress the symptoms of a derangement which they will not try to correct by measures that will work, though of course not with magical ease and speed. Protectionism is still perhaps the most patently absurd economic policy. If the public cannot be taught that imports are either paid for with exports or given away—and that wealth is not increased by getting rid of as much as possible and getting as little as possible in return—there is not much incentive to discuss with them issues that raise real or difficult questions. Protective duties, in fact, benefit very few and are largely voted by those who pay most directly for the social waste.

However, error and ignorance often are not due to low mental capacity but to "prejudice," which can blind men even to the obvious. Some pernicious economic prejudices may be classed as "immoral," like hatred or suspicion of foreigners and people above one's own class, or below it, or merely in another occupation group. Sad but necessary to say, however, some of the worst, and in considerable part those named, derive from our religious-ethical tradition. Of course most people do not believe what they profess in this field; the weird variety and incongruity of religious beliefs of persons otherwise similar mentally and morally prove that. But that surely is not a healthy state of affairs from the standpoint of democracy, which must mean government by intelligent discussion. Probably few now believe that suffering is merely punishment for sin, still less the sins of the persons who suffer, or

that it is wicked to care about well-being in the earthly life. Some Protestants and many Catholics undoubtedly do still in a sense believe that tolerance is sinful and would repress and finally torture and kill "heretics" if they could. Anyhow, the tradition of dogmatism and intolerance survives (its "logic" is irrefutable, given the religious premises concerning divine authority and salvation) and carries over into the attitude in discussion of morals, all aspects of economic problems, and partisan politics. It promotes confusion of matters that are of no practical consequence with matters on which agreement is really essential and encourages the belief that believing is a virtue and that disagreement is due to sin—of the other party—which makes discussion impossible and prompts appeal to force or some form of "persuasion," frequently the most contemptible species of coercion.

Especially interesting is the teaching that it is a sin to be rich—but quite laudable to enjoy any amount of wealth and use it for pomp and display and to wield any amount of arbitrary power if it is done in the name of the church, or even of a state if this obeys the orders of the church. Shailer Matthews, of the University of Chicago, Doctor and Dean of Divinity, observed that the church's condemnation of wealth is matched only by its zeal to obtain it. One feels like being amused at the situation created by the Communists' taking over this doctrine—merely changing "church" to "party" and substituting the more up-to-date metaphysic of materialism, equally incredible and irrelevant. Something like an inherited religious prejudice is required to account for many of the economic beliefs most popular today; for instance, that all landlords are rich and grasping and all tenants poor and virtuous—and the extent to which in each individual case an inflation will benefit the one at the expense of the other if the tenant freely profits by it while the landlord is prevented from doing so. This is supposed to protect tenants from the consequences of a housing shortage which in fact results only from rent-fixing—and naturally means that people who need or wish to rent houses cannot do so at all. There is no shortage of houses for sale, since there is no fixing of prices. But many far more hoary economic ideas are in the same class: that "labor" produces everything or, specifically, that it produces "capital" or that "capital" employs labor, any more than the opposite is true in each case, or that employed persons are "working for" their employer (whoever that is thought to be) rather than, in a sense, for the ultimate buyer of the product, but really for themselves. Of course people work for themselves more effectively by working for one another, and this fact is both the basis and the essential nature of the free-exchange form of organization.

Man is a social being, social animal, if you will, but one who is peculiar in that instinct has been largely replaced by traditions, mores, and laws, made and enforced in various ways, setting various limits to individual liberty. In primitive society laws were hardly made but grew, as custom, and required little enforcement. With the coming of civilization, custom was more or less replaced by authority, itself based on custom, for enforcing law and to a limited extent for making law, i.e., changing it. For any group to exist, its members must in some way agree on the laws, their scope and content. In modern democratic society the law is made and enforced by officials elected under free discussion and so made responsible to the popular will. Such law

must be limited, in favor of individual liberty, to matters on which there is an approximation to general agreement, not merely of a bare majority. American experience with slavery and prohibition is surely enough to show, to those who would not see without being shown, that a substantial minority cannot be coerced, much or long, without breaking up society or at least destroying freedom and bringing on a dictatorship, civil war, or chaos. Certainly coercion cannot yield effective co-operation in any sort of activity. If people are to play together they must agree on the game and the rules; otherwise, whatever motions they may make, it is no game. And not much time can be given to discussion, either (barring the tendency of such argument to degenerate into a fight). Similarly with worship or work or any joint activity.

In economic life some results can be had through force (slavery), but they will be meager. But the main fact about economic organization is that nothing but loss of efficiency prevents any group, however small, from having its own system, as they can have any game or any religion they can agree upon. Even any individual can have his solitary own if others do not arbitrarily interfere. In reality, economic activity itself is in part a game, quite as much as it is a means of satisfying any objective or given wants or needs. And, like other social activities, it tends to generate the competitive spirit and to be motivated by that interest. It is also a mode of "sociability"; the assumption that market relations are impersonal must be made for the purpose of analysis, but it is far from the whole truth. Today, to take advantage of modern technology, men must cooperate with hosts who are unknown to them, and, at the same time, men of all sorts and degrees must work together in large, intimate, and often rapidly changing groups. But we did not evolve in or for such life. One may say that we "must" co-operate, since it is a condition of efficiency to such a degree that otherwise life would be poor, mean, nasty, brutish, and short—the last, comparatively speaking and for the mass. All the more virtuous, no doubt, according to our preachers who call for a return to "spiritual values." But one notices that this usually refers to the lower classes; the class doing the preaching expects the choice cuts, in payment, no doubt, for their moral idealism. But it is quite true —and we should not need the current welter of weird psychologies to teach us this—that economic problems, in their strictly economic aspect, are not nearly so serious as the preachers of reform make out. It is personal relations that really hurt; relative poverty and supposed "injustice," particularly humiliation, are worse than actual privation. However, those who are "sitting pretty," high in the economic scale, may find difficulty in making those low in the scale contented by explaining all this to them.

I have remarked that many economic issues are not problems at all except in the psychological sense—that men do not use common "gumption" in these matters. The first, most vital, "policy" of democratic man must be to think objectively, not just to emote and react. But we can't blame the masses too much; for 500,000 years they have been taught —conditioned as infants and compelled as adults—to believe without thinking, and this rarely so vehemently and violently as in Europe during the fifteen-odd centuries of domination by organized Christianity. Then, as we have observed before, the rules were changed abruptly, radically, and recently; or, rather and

worse, new and opposite standards were set up without repealing the old, so that people can hardly know which ones to follow. And further, the first fruit of liberation, naturally enough, was a proliferation of prophets, cults, and gospels, as well as theories promulgated by writers and thinkers of all grades of knowledge from the limited amount really knowable at best down to an enormous minus quantity—knowing a lot that is not true. And, on top of all, the worst confusion from the left—pragmatic philosophers, pseudo-scientists, and even real scientists far from their field of competence are preaching that the problems of human conflicts of interest are to be solved by the techniques found successful in predicting the behavior of stars, machines, and molecules and controlling processes within the range of manipulative influence. The relation between religious belief and intelligence was well stated by Francis Bacon: "The more absurd and incredible any divine mystery is, the greater honor we do to God in believing it"; but the new doctrine of scientism in morals is quite as foolish and is clearly much more dangerous now.

Beyond the easy or bogus problems like protectionism and price control are real ones, and hard; so hard that they have no "solution," that the best that can be expected without courting disaster is a reasonable compromise. Social problems call for knowledge where there are no tests of truth, as there are in natural science. It is a situation calling for wide tolerance of differences and tolerance of what *is*, however unjust it may be, until there is fair agreement on some specific change. The crucial question is why freedom is not enough. For it is not enough, and would not be, even if men would understand and consider the elementary mechanics, or elementary arithmetic, of the free economic order, based on exchange but allowing any other arrangement on which the parties can agree as being better; and even if they would be tolerant and friendly in all their social relations. About the first only a few observations are possible here, mostly negative and also obvious. The open-market organization is popularly criticized chiefly on the ground that "competition would be all right if it worked according to the theory, but it doesn't work." This is less than a half-truth. In the first place, the system does conform to theory far more closely than is generally thought; and, in the second place, far more weighty objections would apply to theoretically perfect competition: in fact, it would be monstrous and impossible. The critics who on grounds of the contrast between economic theory and reality demand that business be replaced by politics, which they like to call "economic democracy," do not ask how far democracy does or will conform to some theoretical ideal. They do not try to say what the ideal would be. The popular conception seems to be that government is a fairy godmother to pass out expensive services at no cost—or perhaps at the charge of bloated monsters in Wall Street who deserve only spoliation and punishment.

The two chief mechanical imperfections of the entrepreneurial economy, in practice, are the tendency to cycles, bringing unemployment, waste, and distress, and the occurrence of monopoly. Both the amount and the evil of monopoly are fantastically exaggerated in the public mind, as could easily be shown if space allowed; we may refer to the deliberate granting of patents and copyright and the fact that most monopolies

are much like these in operation. We must note too that the major restrictions preventing effective competition are due directly or indirectly to stupid public policy, as Adam Smith held in his day. I refer particularly to the coddling of pressure groups in agriculture and organized labor; also to excessive grants of power to corporations. The business cycle is indeed a serious matter, but it is not a problem of conflict of interests, since practically no one profits from depressions.

The most serious problems, in reality, lie elsewhere and can only be indicated here. Individual freedom, in any complete sense, is an absurdity, and individual equality is still more fantastic. The family, in some form, is the minimum unit in any society, particularly for production and distribution. Economic reformism means very largely the replacement of the natural family by the state. In so far as this is possible, not to speak of its desirability, it must transfer the same conflicts over inequality and exploitation to the international sphere, where they are already a menacing phenomenon. There is no way of establishing justice between the parents in one generation which will not create gross injustice between their children in the next. The rights of parents and those of children conflict—with one another and with social necessity. This is the most seriously overlooked aspect of the general problem, with the deadlock between states a close second. We have no premises on which to base discussion, because the sovereign state simply has no place in our accepted ethical principles, either those of Judeo-Christianity or those of modern liberalism. Even the principle that agreements should be kept does not stand against serious reasons of state.

The fundamental fact underlying the whole modern situation is the very limited reality of the free individual (which, again, is assumed in both liberalism and Christianity—though in the latter with no implication of equality in earthly society). Freedom means freedom to use means actually possessed or controlled to achieve ends actually desired; and men get both their resources and capacities and their tastes in the main from the working of social institutions in the past. Man is a cultural animal or being, which means a creature of tradition and custom; these must always be the real basis of social order. And man's freedom or power to change his institutions is accordingly small. The amount of choice an individual or a community has in the matter of the language he or it will speak is only a somewhat extreme illustration. Freedom to use means must include using them to get more means, which gives rise to a tendency for inequality to increase cumulatively. To him that hath shall be given. This tendency is carried beyond the individual life from generation to generation by the family (or if it were abolished, by other primary-group systems). Inheritance of property, which is generally blamed for this situation, is in fact an inessential detail; for other forms of economic power, and of political, social, and psychological power, also afford opportunity for the strong, or the fortunate, to place their heirs in a favored position as well as to get more power for themselves. The tendency toward concentration can be somewhat mitigated through differential taxation and its use to provide various services, especially free education. But this is possible only up to a point, which no one can define but beyond which such measures will destroy incentive and then freedom or civilization or both.

Without rising to these high social and ethical considerations, however, there are conflicts of values at the more mundane and economic level, conflicts with no possible "solution" except the best achievable compromise. As already suggested, a tolerable degree of productive efficiency under modern technical conditions requires organization of many branches of production in very large units. But there are narrow limits to the possibility of combining large-scale organization with the flexibility necessary for adaptation to the changes of a highly progressive culture and at the same time to assure a large measure of freedom to the individual member. The problem is similar to that of an army, in which effectiveness calls for "drill" that makes particular activities a matter of habit and for unquestioning obedience to command. Thus freedom and order are conflicting goods, as are freedom and progress with order as a condition. It is hard at best to combine freedom with the other two requirements, even if everyone fervently believes in freedom and desires it for others as well as for himself. Even in spite of themselves, those responsible for "results" tend to seek power. In addition, of course, many men like power for its own sake, and power tends to gravitate into the hands of such—who by that token are typically not to be trusted not to abuse power. This danger is a further part of the price of efficiency in terms of freedom.

If democracy is to live and advance, it must verily learn to be as wise as a serpent and as harmless as a dove; and this above all: not to expect too much. More knowledge and experience have badly shaken the roseate eighteenth-century faith in man, especially in his capacities and wisdom but also in his good intentions. And we live in a universe which shows no detectable preference for one type of life over any other; it rains and the sun shines, impartially, not only on the just and unjust of our species but on our friends and our enemies in the lower orders, the weeds, the parasites, vermin, and disease germs that infest the globe. Co-operation within a group has survival value but has to be turned against competing groups as well as used in the effort to wrest the means of existence from the reluctant earth. With regard to any concern for justice, mercy, or kindliness on any general human scale, or esteem for cultural values as such, the evidence is that these must be kept alive through a conspiracy of man against the nature of things and his own nature as well.

I was personally much impressed by Mr. Henry Wallace's contention that every baby has an equal right to its bottle of milk. I can find nothing wrong with that, except for the detail that the main actual result of any direct attempt to meet the need will be more babies crying for their milk and the impoverishment of life for those who yield to such a temptation to virtue. Democracy must also keep well in mind that even "the poor" are better off under civilization than in savagery and in free than in totalitarian society. And any drastic attempt to achieve "justice," in any of the numerous conflicting definitions verbally honored in our present-day society, will, as just said, destroy the type of human life that cares about such things at all.

I am aware that these remarks will not seem very "constructive" and will likely provoke the accusation of negativism or even pessimism. Limits of scope have precluded any nice balancing of "on the one hand" against "on the other hand." And, as was noted at the outset, it seems that what most needs emphasis at this time is the danger of ill-considered, if

well-meant, action rather than any stirring call to "do something." Perhaps there was a time, and not so far back in history, when the opposite was the case. But our culture must shed any remaining vestiges of belief that the evils of life arise because people do wrong, though they know what is right. Democratic man needs to act; but in the face of the infinite complexity and sensitiveness of the modern social organism he needs above all, in social action, to be intelligent. And in the face of the uncertainty of knowledge, he must be very tolerant. But, of course, not *too* tolerant! and, for that matter, not *too* intelligent, either; though warning is hardly needed on this point.

A THEORY OF INCOME DETERMINATION

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IT IS not unusual for a writer who tries valiantly to conduct a study of income determination along Keynesian lines to slip involuntarily into a Robertsonian period analysis or introduce surreptitiously one or two Swedish concepts. The result is hard on the reader's patience and the writer's conscience. Students of income determination have long recognized the need for an integration of Keynesian, Robertsonian, and Swedish income analysis, and a decade ago Lerner issued a call for someone to invent "a way of using non-equilibrium *ex ante* process analysis."[1] Hansen's and Hicks's penetrating discussion of some of the issues involved has recently emphasized the continued importance of the problem.[2] This paper makes suggestions for the integration of the three approaches through the use of the concept of "realized surprise." It discusses the relation between the various approaches and indicates how they may form mutually consistent and complementary parts of a workable model.

[1] A. P. Lerner, "Some Swedish Stepping Stones in Economic Theory," *Canadian Journal of Economics and Political Science*, November, 1940, p. 590. See the important contribution made along these lines in A. Smithies, "Process Analysis and Equilibrium Analysis," *Econometrica*, January, 1942, pp. 26–38.

[2] Alvin H. Hansen, "The Robertsonian and Swedish Systems of Period Analysis," *Review of Economics and Statistics*, February, 1950, pp. 24–29, and "A Note on Savings and Investment," *Review of Economics and Statistics*, February, 1948, pp. 30–33; J. R. Hicks, *A Contribution to the Theory of the Trade Cycle* (Oxford: Clarendon Press, 1950), chap. iii, "Saving, Investment, and the Multiplier."

I. KEYNESIAN EQUATIONS

The Keynesian equations are:

$$Y = C + I$$

$$S = I\,,$$

where Y is income, C consumption, I investment, and S saving. Numerous interpretations of the Keynesian equations are extant. In our interpretation both equations refer to *ex post* or realized magnitudes and cover the same period of time. To indicate this unambiguously, we rewrite the equations as follows:

$$Y_{r_t} = C_{r_t} + I_{r_t} \qquad (1)$$

$$S_{r_t} = I_{r_t}\,, \qquad (2)$$

where the subscript r represents an *ex post* or realized magnitude and the subsubscript t refers to the period t.

Since it follows from (1) that

$$Y_{r_{t-1}} = C_{r_{t-1}} + I_{r_{t-1}}$$

and these magnitudes, referring as they do to period $t-1$, have a known value for any analysis of the period t, we may rewrite equation (1) as follows:

$$Y_{r_t} - \bar{Y}_{r_{t-1}} = C_{r_t} - \bar{C}_{r_{t-1}} + I_{r_t} - \bar{I}_{r_{t-1}}\,,$$

where the barred symbols represent magnitudes which may be considered given for the evaluation of the endogenous variables of the current period. This equation may be rewritten

$$\Delta Y_{r_t} = \Delta C_{r_t} + \Delta I_{r_t}$$

or

$$\Delta Y_{r_t} = \Delta I_{r_t} \frac{1}{1 - \frac{\Delta C_{r_t}}{\Delta Y_{r_t}}}. \qquad (1')$$

The term $(\Delta C_{rt})/(\Delta Y_{rt})$ is the "instantaneous marginal propensity to consume," and the term

$$\frac{1}{1 - \frac{\Delta C_{r_t}}{\Delta Y_{r_t}}}$$

is the "instantaneous multiplier." This lengthy way of arriving at this well-known result (which was demonstrated at an early date by Haberler)[3] is used here to emphasize the fact that the "instantaneous marginal propensity to consume" and the "instantaneous multiplier" are derived directly from definitional equation (1) with nothing added. It is important to emphasize this because it means that the Keynesian definitional propensity to consume, which, as Ohlin suggested, might have been called the "realized consumption ratio,"[4] must be entirely consistent with any "behaviour" consumption function we may wish to assume, such as the Robertsonian. This will be explored more fully later. A realization of this is an important first step in integrating the so-called "timeless" system of Keynes with the "period" analysis of Robertson.

Equation (2) represents the *ex post* equality of saving and investment. They are stated here simply as realized magnitudes. The question whether they may be regarded as functions of income or anything else will be considered after we have set up several additional relationships.

The term I_{rt} in equation (1) represents all forms of investment which are part of the national income, including private investment of all kinds (plant, equipment, and inventories of capital and consumption goods), the government contribution at all levels of government, and the foreign balance. If we wished to explore these separately, we could add the following equation:

$$I_{r_t} = P_{r_t} + G_{r_t} + F_{r_t},$$

where P represents private investment, G governmental contribution, and F foreign balance. Each component may be subdivided further for particular problems. In the analysis of inventory cycles, for instance, P would be broken down into capital equipment and inventories and a definite determining relationship for the latter established, as in the case of Metzler's "inventory accelerator."[5] The governmental segment may be subdivided to take account of the several levels of government.[6] The foreign-trade element may be analyzed in detail.[7] More general forms may also be established.[8]

[3] Gottfried Haberler, "Mr. Keynes' Theory of the 'Multiplier': A Methodological Criticism," *Zeitschrift für Nationalökonomie*, 1936, pp. 299–305 (reprinted in *Readings in Business Cycle Theory* [Philadelphia: Blakiston Co., 1944], pp. 193–202).

[4] Bertil Ohlin, "Some Notes on the Stockholm Theory of Savings and Investment," *Economic Journal*, 1937 (reprinted in *Readings in Business Cycle Theory*, p. 125).

[5] See Lloyd A. Metzler, "Factors Governing the Length of Inventory Cycles," *Review of Economic Statistics*, XXIX (1947), 1–15, and "The Nature and Stability of Inventory Cycles," *ibid.*, XXIII (1941), 113–29.

[6] See Harold M. Somers, "The Multiplier in a Tri-Fiscal Economy," *Quarterly Journal of Economics*, LXIII (1949), 258–72.

[7] See, e.g., Fritz Machlup, *International Trade and the National Income Multiplier* (Philadelphia: Blakiston Co., 1943).

[8] For two different approaches to the problem of generalizing the multiplier, see John S. Chipman, "The Generalized Bi-System Multiplier," *Canadian Journal of Economics and Political Science*, May, 1949, pp. 176–89; Richard M. Goodwin, "The Multiplier as Matrix," *Economic Journal*, December, 1949, pp. 536–55; and papers presented by both

In case I is broken down along these lines, a subsidiary set of equations will have to be added to our model, except for the components that are assumed to have been given exogenously. No particular difficulty will be involved.

One caution must be sounded, however, in connection with all these subdivisions of "investment" in multiplier analysis. Where investment as a whole is assumed to be "given," it is not assumed that each component of investment remains unchanged but rather that the components of investment constantly arrange themselves so as to keep the magnitude of I constant. For instance, if we begin with a certain amount of increased investment in equipment, it is likely that many changes will take place in other investment components, such as inventories, net government contribution, and foreign trade. Yet if our multiplier analysis assumes investment given, all these internal changes do not affect the investment item in the multiplier formula.[9]

These two equations, (1) and (2), do not, of course, do justice to the Keynesian system, which has important things to say about the causal determinants of consumption and investment. In the case of the consumption function, however, the Robertsonian analysis provides an essential contribution; and, in the case of the inducement to invest, the Swedish approach formulates a very useful set of relationships In both cases the over-all non-Keynesian formulation provides greater power than the Keynesian while not being inconsistent with it. The consumption function and the inducement to invest are, therefore, discussed in subsequent sections of this paper. The extent to which the Keynesian tools, such as the marginal propensity to consume, the marginal efficiency of capital, and the rate of interest, may be utilized in our model is indicated in those sections.

II. ROBERTSONIAN EQUATIONS

The Robertsonian system accepts the relationships between realized magnitudes expressed in equations (1) and (2) but adds the equations

$$Y_{t-1} = C_t + S_t$$

and

$$C_t = f(Y_{t-1}).$$

The question whether the terms in these equations are to be designated as "realized" magnitudes is now to be considered. It can be shown that not all terms can represent "realized" (i.e., actual or *ex post*) magnitudes. The term Y_{t-1}, representing last period's income, must be taken as given for the current period. It may also be assumed that consumers accomplish whatever consumption they undertake during the current period. Hence C_t is "realized." If S_t were also "realized," it would be equal to I_{r_t} by equation (2). Hence a comparison of equations (1) and (3) would lead to the conclusion that Y_{t-1} and Y_t are equal. The system of equations would then permit no income changes from period to period. Hence S_t cannot be regarded as a realized magnitude. Although it represents the full amount of last period's income which people do not currently spend on consumption, hence "save," it cannot represent the full amount that actually constitutes saving in the current period. The realized saving may be different from the

authors at the meeting of the Econometric Society in New York City, December, 1949, subsequently abstracted in *Econometrica*, July, 1950, pp. 286–88.

[9] See Harold M. Somers, "The Instantaneous Theory of the Multiplier: A Comment [on a note by Clarence L. Barber in the February, 1950, issue]," *Canadian Journal of Economics and Political Science*, May, 1950, pp. 239–40.

currently nonconsumed portion of last period's income because of unexpected changes in the current income which do not affect consumption but increase or decrease saving. To make clear these necessary distinctions, we rewrite the Robertsonian equations as follows:

$$\bar{Y}_{r_{t-1}} = C_{r_t} + S_{p_t} \qquad (3)$$

$$C_{r_t} = f(\bar{Y}_{r_{t-1}}). \qquad (4)$$

The subscript p represents planned (i.e., intended or *ex ante*, in the sense of a single magnitude rather than a schedule) saving. In this respect our interpretation of Robertsonian saving conforms to that of Lutz and disagrees with that of Lerner. The fact that the funds involved in Robertsonian saving come from the previous period does not preclude their use in determining the planned saving of the current period, nor does the fact that Robertsonian saving is measured in relation to income of the previous period prevent it from being the planned component of the realized saving and income of the current period.[10]

Although these distinctions sound "Swedish," they are implicit in the Robertsonian system and essential to it. The Swedish contribution lies in formulating the distinctions explicitly and setting up a complete system based on them. The source of the funds represented by S_{p_t} is last period's income, but the decision as to how much saving to plan for during the current period (S_{p_t}) is made with a view to the plans of the current period. The consumption function reflects those plans, and S_{p_t} is an expression of them.

It should be pointed out that equation (4) represents the consumption function. It is not inconsistent with the "instantaneous marginal propensity to consume,"

$$\frac{\Delta C_{r_t}}{\Delta Y_{r_t}},$$

which was derived from equation (1). Equation (4) tells us how much consumption there will be in the current period. Equation (1) and the instantaneous marginal propensity to consume merely tell us how the amount of current consumption, which was determined by equation (4) or otherwise determined, compares in magnitude with investment and income of the current period. Just as equations (1) and (4) are different from, independent of, and yet consistent with each other, so the instantaneous marginal propensity to consume is different from, independent of, and consistent with the consumption function. There are various possible alternatives to equation (4). One alternative which may be considered as the Keynesian consumption function is

$$C_{r_t} = f_1(Y_{r_t}). \qquad (4')$$

For C_{r_t} and Y_{r_t} in equation (1) to be the same as the corresponding magnitudes in equation (4'), $f_1(Y_{r_t})$ must be equal to $Y_{r_t} - I_{r_t}$, which means that equation (4') and definitional equation (1) must be consistent with each other. For instance, if (4') tells us that C_{r_t} is some fraction, a, of Y_{r_t}, then the magnitudes in (1) must conform. The value of I_{r_t} in (1) then automatically sets the values of C_{r_t} and Y_{r_t}. Equation (4') is not a consumption function in the sense of giving us an absolute amount of current con-

[10] See Friedrich A. Lutz, "The Outcome of the Saving-Investment Discussion," *Quarterly Journal of Economics*, Vol. LII (1937–38) (reprinted in *Readings in Business Cycle Theory*, pp. 138–50); and Abba P. Lerner, "Saving and Investment: Definitions, Assumptions, Objectives," *Quarterly Journal of Economics*, Vol. LIII (1938–39) (reprinted in *Readings in Business Cycle Theory*, p. 160, n. 2).

sumption; it merely tells us the ratio of the current consumption to current income. The actual amounts of consumption and income are determined by investment—hence the controlling role of investment in the Keynesian system. With equation (4), however, we have a "true" consumption function which gives us an absolute amount of current consumption regardless of the current level of investment.

Equation (3) provides for the "expenditure lag." In this case, the income of one period is spent in the next. A lag of several periods could readily be substituted. There are many studies—such as those of Duesenberry, Katona, and Modigliani—which indicate that a lagged relationship is appropriate or, at any rate, that a simple concurrent relationship is not appropriate.[11] Studies of available data by Metzler and by Tinbergen and Polak, however, point to a short-run correspondence between current income and current consumer expenditure in the United States.[12] In the case of annual data, Haavelmo has shown that the preceding year's income may be given some part in the consumption function.[13]

Any lag between the production and payment of income is not taken into account here. The output of goods creates income which accrues to the income recipients. If, perchance, some of the accruals are not paid out and thus do not become available for disposal by consumers, the result will presumably be to affect the level of consumption. Hence any "income payments" lag will show its effects through the consumption function, equation (4). In so far as the retention of business earnings also affects the inducement to invest, the "income payments" lag will also show its effects in the magnitude of investment in equation (1) the determinant of which is introduced at a later stage (in equations [7]–[10]).

The relation between the "instantaneous" and "normal" marginal propensity to consume (hence multiplier) may now be demonstrated through the use of equations (1′) and (4). Suppose that income, consumption, and investment have grown proportionately for some years and the ratio $(\Delta C_t)/(\Delta Y_t)$ has been the same year after year, say at 4/5, and that we call this the "normal" value. Specifically in period t, $(\Delta C_t)/(\Delta Y_t)$ is 4/5. The reason why the two rose proportionately may be that consumers foresaw fully the effects of increments of investment. Now suppose that in period $t+1$ there is an increment of investment ΔI_{t+1} which, departing from earlier experience, is not foreseen by consumers,

[11] For a review of earlier studies on this subject see Harold M. Somers, *Public Finance and National Income* (Philadelphia: Blakiston Co., 1949), chap. iv, pp. 39–64. For recent studies see James S. Duesenberry, *Income, Saving and the Theory of Consumer Behavior* (Cambridge: Harvard University Press, 1949), esp. chaps. v and vi; George Katona, "Effect of Income Changes on the Rate of Saving," *Review of Economics and Statistics*, May, 1949, pp. 95–103, and "Analysis of Dissaving," *American Economic Review*, June, 1949, pp. 673–88; Franco Modigliani, "Fluctuations in the Saving-Income Ratio: A Problem in Economic Forecasting," *Studies in Income and Wealth* (New York: National Bureau of Economic Research, 1949), XI, 371–443; and Roy C. Cave, "Prewar-Postwar Relationship between Disposable Income and Consumption Expenditures," *Review of Economics and Statistics*, May, 1950, pp. 172–76.

[12] Lloyd Metzler, "Three Lags in the Current Flow of Income," in *Income, Employment and Public Policy: Essays in Honor of Alvin H. Hansen* (New York: Norton, 1948), pp. 1–32, esp. pp. 21–24; and Jan Tinbergen and J. J. Polak, *The Dynamics of Business Cycles* (Chicago: University of Chicago Press, 1950), chap. xiii, pp. 159–232, esp. 182–91. Contrast Robert V. Rosa, "Use of the Consumption Function in Short Run Forecasting," *Review of Economics and Statistics*, May, 1948, pp. 91–105.

[13] Trygve Haavelmo, "Methods of Measuring the Marginal Propensity To Consume," *Journal of the American Statistical Association*, March, 1947, pp. 105–22, esp. p. 120 n.

who make no adjustment whatever. According to (1), however, income will rise by the amount of increase in investment. Hence $(\Delta C_{r_{t+1}})/(\Delta Y_{r_{t+1}})$ will be less than $(\Delta C_{r_t})/(\Delta Y_{r_t})$, which equaled the normal value. This has come about because of a lag in the response of consumption to an increase in income, as in equation (4). Under equation (4), however,

$$C_{r_{t+2}} = f(Y_{r_{t+1}}).$$

Therefore the increase in realized income $\Delta Y_{r_{t+1}}$ will be reflected in the consumption of the next period, $\Delta C_{r_{t+2}}$. Thus $(\Delta C_{r_{t+2}})/(\Delta Y_{r_{t+2}})$ will be greater than $(\Delta C_{r_{t+1}})/(\Delta Y_{r_{t+1}})$ and will be closer to the normal value represented by $(\Delta C_{r_t})/(\Delta Y_{r_t})$. This rise in the direction of the normal value continues indefinitely. Thus for each period when we have income changes unforeseen by consumers, we shall have a different "instantaneous" $(\Delta C_r)/(\Delta Y_r)$, but after a sufficient length of time, or after consumers foresee and adjust to the new pattern of income changes, the "instantaneous" multiplier for some period, say, $t + m$, will attain or approach the normal value.

III. SWEDISH EQUATIONS

The differences which exist among Swedish writers such as Wicksell, Myrdal, Lundberg, and Ohlin make it difficult to characterize the Swedish school in any simple manner. Nevertheless, the general though not universal Swedish emphasis has been on the contrast between planned and unplanned magnitudes. Perhaps it is correct to say (analytically, not chronologically) that Robertson has emphasized planned magnitudes, Keynes has stressed realized magnitudes, and the Swedish writers have accented the relation between the two.

The Swedish system has contributed the following equations:

$$S_{r_t} = S_{p_t} + S_{u_t} \tag{5}$$

$$I_{r_t} = I_{p_t} + I_{u_t}, \tag{6}$$

where the subscript u represents unplanned (i.e., unexpected or unintended) magnitudes. The Swedish analysts can readily make assumption (4), which, when stated in terms of expectations, could be interpreted to mean that consumers expect their income to remain stable. If they choose, they may, instead, consider consumption as being determined by expectations based on other variables within the system (i.e., endogenous to the model) or even totally outside the system (i.e., exogenous to the model). In the latter case, we should have

$$C_{r_t} = \bar{C}_{r_t}. \tag{4''}$$

In place of (4) or (4'') a more complicated consumption function taking account of past peak income, trough income, or any other income (or other variables within the system) might be used.

IV. ADDITIONAL EQUATIONS

The additional equations which are needed to complete our system deal with the inducement to invest—hence draw heavily on Keynesian, Robertsonian, and Swedish analyses, to mention only a few. Emphasis is placed on "expectation-formation" and "realized surprise," concepts which will be explained in due course.

The planned investment of the current period may be determined by the unplanned changes of the preceding period, which are emphasized in the Swedish analysis.[14] In that case we might have

[14] However, Ohlin seems to be willing to make planned investment an exogenous variable, since he refers to the use of questionnaire surveys to obtain the necessary estimates (Bertil Ohlin, *The Problem of Employment Stabilization* [New York: Columbia

$$I_{p_t} = g(\bar{S}_{u_{t-1}}, \bar{I}_{u_{t-1}}, i_t), \qquad (7)$$

where g represents some functional relationship and i_t is the rate of interest set by the monetary authority. This equation may be interpreted in terms of expectations, in which case we may say that the unintended changes of the preceding period govern current expectations and output decisions.

The Keynesian investment function which is based on the marginal efficiency of capital in relation to the rate of interest (and is comparable although not identical to the Wicksellian relation between the natural and market rates of interest) is implicit in equation (7).[15] The marginal efficiency of capital is an expression of entrepreneurial expectations concerning the profitability of investment. Although Keynes did not himself tie those expectations closely into past experiences, equation (7) suggests that the significant factors determining those expectations are the unintended saving and investment of the previous period, since they imply the making of unexpected profits or losses. Other factors could be included, but most of the factors that come to mind are redundant in that the unintended saving and investment are derived from them. As for the rate of interest, it has been included as being given exogenously by the banking system. The interest rate is thus treated as a given magnitude for the current period. We may also make the rate of interest an endogenously determined variable and incorporate the Keynesian theory of interest into the model if we wish. In that case we would substitute the following three equations for (7):

$$I_{p_t} = g_1(\bar{S}_{u_{t-1}}, \bar{I}_{u_{t-1}}, i_t) \qquad (7'a)$$

$$i_t = g_2(M_{d_t}, \bar{M}_{s_t}) \qquad (7'b)$$

$$M_{d_t} = g_3(Y_{r_t}, i_t), \qquad (7'c)$$

where $\bar{M}_{s_t}$ is an exogenously determined amount of money supplied by the monetary authority and M_{d_t} is the demand for money, here assumed to be related to realized income and the interest rate. The loanable funds theory might be used instead. In that case we would have

$$i_t = g_4(\bar{B}_{d_t}, B_{s_t}) \qquad (7'b')$$

$$B_{s_t} = g_5(I_{p_t}, i_t) \qquad (7'c')$$

in place of (7'b) and (7'c), where B_{d_t} is the demand for securities, here assumed to be determined (in the aggregate) by the banking system and B_{s_t} is the supply of securities, here assumed to be related to planned investment and the rate of interest. More elaborate assumptions may be introduced in the case of both theories.

Similarly, equations could be established for the production function and the demand and supply of labor. Since these matters take us far afield, they are not incorporated in the model, but it would not be difficult to provide a place for them.

The planned investment of the current period could be determined by expectations based on other variables within the system through some other investment function, of which one example would be the acceleration principle which forms

University Press, 1949], pp. 117–18). Presumably estimates of the sort made by the U.S. Department of Commerce would be useful in this connection. See Lawrence Bridge and Bernard Beckler, "Capital Investment Programs and Sales Expectations in 1950," *Survey of Current Business*, April, 1950.

[15] As Tarshis has pointed out, the effect of disappointment on the marginal efficiency of capital can readily be taken into account if the knowledge is available. See Lorie Tarshis, review of Bertil Ohlin, *The Problem of Employment Stabilization*, in *Journal of Political Economy*, LVII (1950), 359.

the basis of Lundberg's study.[16] The complicated nature of the acceleration relationship, however, imposes serious difficulties on the explicit inclusion of the principle in the present model.[17] The level of planned investment could also be determined by exogenously given expectations. In that case we would have

$$I_{p_t} = \bar{I}_{p_t}. \qquad (7'')$$

The next step is to determine the unplanned investment. Here we have the most interesting implications of the Swedish emphasis on unplanned saving and investment. We may designate by C_{m_t} and I_{m_t} the current output of goods produced for consumption and investment (in excess of replacement requirements), respectively. The entire amount will contribute to the employment and income of the period, although some of the goods may not sell and may, instead, accumulate in inventories, thereby constituting part of the realized investment of the period. Thus we derive the equation

$$I_{u_t} = (C_{m_t} - C_{r_t}) + (I_{m_t} - I_{p_t}), \quad (8)$$

which tells us that unplanned investment consists of consumption and capital goods which were intended to be sold within the period but were not sold, hence were unexpectedly added to inventories (or, alternatively, sales might exceed production with the result that inventories are depleted). All unplanned investment is included under I_{u_t} whether in the form of inventories of capital or consumption goods. The two types of inventories might be distinguished and separate relationships established for them.

In order to appreciate the meaning of C_{m_t} and I_{m_t}, we need some understanding of the concept of "expected income." "Expected income" may have four meanings in this context:[18] (*a*) the income which consumers expect and on which they form their consumption plans; by equation (4) this expected income is last period's income, and by (4″) it is not based on any past experiences embodied in the model; (*b*) the total sales of capital and consumption goods expected by producers of such goods; this is embodied in our equations (9) and (10); (*c*) the income level expected by those who make investment decisions; this is embodied in our equation (7); and (*d*) the sum of planned consumption and planned investment, i.e., the sum of C_{r_t} (since we are assuming consumption plans are realized) and I_{p_t}; this is the income which an economist would "expect" if he surveyed consumers and investors, and it would be realized, too, if only producers would consult him and produce accordingly.

It may seem that the distinction between I_{m_t} and I_{p_t} is an unnecessary one, since I_{m_t} consists of capital goods, which must contribute to realized investment, I_{r_t}, in one way or another—either as planned investment, I_{p_t}, if the capital goods are sold or intentionally added to inventories, or as I_{u_t}, if they unexpectedly remain unsold and are thus unexpectedly added to the producers' inventories of goods on hand. It is true that the current value of I_{r_t} would not be affected if we assumed I_{m_t} to be identical with I_{p_t}. The resulting magnitude of I_{u_t} derived from equation (7) would not, however, reflect the full amount of unplanned

[16] Erik Lundberg, *Studies in the Theory of Economic Expansion* (London: P. S. King & Son, Ltd., 1937).

[17] See Somers, *Public Finance and National Income*, pp. 65–116; see also Lundberg, *op. cit.*, p. 243 n.

[18] The first two are proposed by Hansen, "The Robertsonian and Swedish Systems of Period Analysis," *op. cit.*, p. 26.

investment and would thus impair its usefulness as a determinant of subsequent changes.

The need for the distinction between C_{m_t} and C_{r_t} is even greater. In this case we cannot tell whether the consumption goods produced reached consumers, thus constituting C_{r_t}, or remained unsold, thus being added to investment in inventories. In the latter case the investment in inventories may be planned (in which case part of C_{m_t} becomes I_{p_t}) or unplanned (in which case part of C_{m_t} becomes I_{u_t}). This leads to the suggestion that it may be desirable to distinguish also between consumption planned by consumers and that realized by them. In that case planned consumption would appear in place of realized consumption in equation (8) and in several of the earlier equations. The rationale of this would be that unexpected income changes might result in a greater or smaller consumption than had been planned by consumers. If this distinction is made, the consumption planned by consumers must not be confused with C_{m_t}, i.e., the consumption goods produced by producers in the expectation of sale to consumers or for inventory accumulation.

Equation (8) represents the "output-sales" gap. The discrepancy is between *current* output and *current* sales, hence the term "gap" is used here instead of "lag." The latter term may not be entirely inappropriate, however, in that an excess of current sales over current output involves the sale of past output, while an excess of current output over current sales involves the accumulation of goods for future sale. However, the mere fact that inventories are depleted affords no reason to believe that they will be restored unless expectations are favorable.[19]

In order to complete the determination of I_{u_t} in equation (8), we need determinants of C_{m_t} and I_{m_t}. These are provided by the following equations.

$$C_{m_t} = \phi\,(\bar{S}_{u_{t-1}},\ \bar{I}_{u_{t-1}}) \qquad (9)$$

$$I_{m_t} = \psi\,(\bar{S}_{u_{t-1}},\ \bar{I}_{u_{t-1}}). \qquad (10)$$

The production of both consumption and capital goods is assumed to be influenced (but possibly in different ways) by the unexpected events of the previous period, i.e., unintended saving and investment. Again, a variety of other, more complicated relationships may be assumed.

We have defined C_{mt} and I_{mt} in such a way that

$$Y_{r_t} = C_{m_t} + I_{m_t}. \qquad (D\text{-}1)$$

But we cannot include this as an independent structural equation unless we leave out one of the other equations, since it may be derived from (8), (6), and (1) and would make the system overdetermined. Nevertheless, it may well be asked why we bother at all with equations (1)–(8). If we had a model consisting of (D-1), (9), and (10) alone, we would have a complete self-sufficient system which would determine income of the current period for us. All we would have to feed into this system would be the unplanned saving and investment of the previous period. But then how would we determine the unplanned saving and investment of the current period, t, for use in the next period, $t + 1$? The complete set of equations is necessary for that purpose. In a sequence analysis using the above assumptions, the income, unplanned saving, and unplanned

[19] Contrast the assumptions made in Metzler, "Factors Governing the Length of Inventory Cycles," *op. cit.*, and "The Nature and Stability of Inventory Cycles," *op. cit.*

investment of each period are required in order to determine the income of the following period, etc. Equations (D-1), (9), and (10) would give us income of the current period. But that would be the end of it. We would have no way of going on to the next period (on the assumptions made).

V. AN INTEGRATED MODEL

The complete model consisting of ten equations and ten endogenous variables follows. The model is broken down into Keynesian, Robertsonian, Swedish, and "additional" segments.

Keynesian segment:

$$Y_{r_t} = C_{r_t} + I_{r_t} \tag{1}$$

$$S_{r_t} = I_{r_t} \tag{2}$$

Robertsonian segment:

$$\bar{Y}_{r_{t-1}} = C_{r_t} + S_{p_t} \tag{3}$$

$$C_{r_t} = f(\bar{Y}_{r_{t-1}}) \tag{4}$$

Swedish segment:

$$S_{r_t} = S_{p_t} + S_{u_t} \tag{5}$$

$$I_{r_t} = I_{p_t} + I_{u_t} \tag{6}$$

Additional segment:

$$I_{p_t} = g(\bar{S}_{u_{t-1}}, \bar{I}_{u_{t-1}}, i_t) \tag{7}$$

$$I_{u_t} = (C_{m_t} - C_{r_t}) + (I_{m_t} - I_{p_t}) \tag{8}$$

$$C_{m_t} = \phi(\bar{S}_{u_{t-1}}, \bar{I}_{u_{t-1}}) \tag{9}$$

$$I_{m_t} = \psi(\bar{S}_{u_{t-1}}, \bar{I}_{u_{t-1}}) \tag{10}$$

The subscripts are: r, realized magnitudes; p, planned magnitudes; u, unplanned magnitudes; m, goods produced; t, period of time. The variables are: Y, income; C, consumption; I, investment; S, saving; and i, interest rate.

We may trace through the process of income determination in this model. Given last period's unplanned saving and investment, equations (10) and (9) supply us with the volume of capital goods and consumption goods produced. Given last period's income, we obtain consumption in (4). With this information and planned investment in (7), we obtain unplanned investment in (8). Adding them together in (6), we get the realized investment. With the realized investment we obtained from (6) and the realized consumption we obtained from (4), we obtain realized income in (1). Then, using the realized investment from (6) again, we obtain realized saving from (2). And using realized consumption from (4) again, we obtain planned saving in (3). Using these in (5), we obtain unplanned saving. In this way we obtain income, unplanned saving, and unplanned investment.

Another way of describing the function performed by the various equations is to say that the Keynesian segment establishes the relationships that exist between realized income, consumption, investment, and saving; the Robertsonian segment contributes consumption and planned saving; the Swedish segment defines the relation between planned and unplanned magnitudes; and the added segment gives us the determination of planned and unplanned investment. Combining these segments and using the model as a whole, we can determine income from period to period.

VI. PRICES AND PROFITS

The reader may be disturbed by the fact that prices and profits do not appear

explicitly in the above model. The variables are stated in monetary terms using current dollars. This probably creates no problem in connection with the functional relationships for planned investment (g) and for output (ϕ and ψ), since behavior in these cases is likely to be in response to the monetary rather than the real magnitudes. If wages were included as a determining variable, a more difficult question would arise here. As for the consumption function (f), there is a greater likelihood that a stable relationship requires the use of real magnitudes or at least some explicit allowance for price fluctuations. Even then there would be a serious question as to the effect of a changing income distribution on the stability of the relationship.[20] From any point of view, a more elaborate consumption function seems to be indicated. It is not required, however, for the present limited purpose of setting up a broad framework for various approaches to income determination.

Nevertheless, the prominent place given to price fluctuations and concomitant profits or losses in Swedish, particularly Wicksellian, analysis dictates a further examination of the model. We measure output (Y_{r_t}, C_{m_t}, and I_{m_t}) at market prices. This means that any additions to or subtractions from inventories, whether planned or not, are also measured at market prices, a procedure which is consistent with some current accounting practices. Any positive amount of unplanned investment in inventories in any period would exert a downward pressure on prices and profits in the next period (a pressure which might, of course, be offset by either exogenous or endogenous changes). Similarly, any negative amount of unplanned investment would exert an upward pressure. Unplanned savings might have similar effects but with opposite signs: positive unplanned saving in the current period might have a stimulative effect in the next period, while unplanned dissaving in the current period might have a restrictive effect in the next. Thus it seems reasonable to assume that changes in unplanned saving and investment are indicative of changes in prices and profits in so far as they provide the stimulus for a cumulative movement along Wicksellian lines.

VII. CONDITIONS FOR STABILITY OF INCOME OVER TIME

There is now an interesting derived equation to be obtained. From (1), (2), (3), and (5) we have

$$Y_{r_t} - \bar{Y}_{r_{t-1}} = S_{r_t} - S_{p_t} = S_{u_t}. \quad \text{(D-2)}$$

Unplanned savings thus consist simply of the change in income from one period to the next. It will be noted that this derived equation is obtained without the use of (4), hence is independent of the particular consumption function we adopt.[21]

Several important conditions concerning the stability of income over time may be derived. From (D-2) it follows that the condition for the "equilibrium" of income is that realized saving shall equal planned saving, i.e., that unplanned saving shall be zero. In other words,

$$Y_{r_t} = Y_{r_{t-1}}$$

when

$$S_{r_t} = S_{p_t}$$

[20] For a clear exposition of this problem see Erich Schneider, "A Note on the Consumption Function," *Nordisk Tidsskrift for Teknisk Økonomie*, 1948, pp. 223–27.

[21] It should be emphasized that we are using the term "stability of income," in the restrictive sense of "no change over time," the sense in which it is used by the authors cited in this section.

i.e., when

$$S_{u_t} = 0 .$$

The condition $S_{r_t} = S_{p_t}$ (or $S_{u_t} = 0$) is both *necessary* and *sufficient* for unchanging income. Planned investment and the relation between planned saving and planned investment do not enter into the condition. The question arises, though, whether realized investment must equal planned investment (i.e., whether unplanned investment must be zero) when there is equilibrium. In other words, does $I_{u_t} = 0$ when $S_{u_t} = 0$?

Equation (6) tells us

$$I_{u_t} = I_{r_t} - I_{p_t} . \qquad (6)$$

Substituting (2) and (5), we have

$$I_{u_t} = S_{p_t} + S_{u_t} - I_{p_t} . \qquad \text{(D-3)}$$

Putting $S_{u_t} = 0$, we have

$$I_{u_t} = S_{p_t} - I_{p_t} ,$$

which will ordinarily not be zero, since S_{p_t} and I_{p_t} are determined independently, the one by the consumption function (4) and the other by the investment function (7). Yet, by (D-1), there is stability of income over time.

Does the equality of planned saving and planned investment insure equilibrium? If we put $S_{p_t} = I_{p_t}$ in (D-3), we have

$$I_{u_t} = S_{u_t} .$$

There is no reason to believe that this will be zero and hence no reason to believe that there will be equilibrium over time.

Does the equality of realized investment and planned investment insure equilibrium? If realized investment and planned investment are equal, $I_{u_t} = 0$. Substituting this in (D-3), we have

$$S_{p_t} + S_{u_t} - I_{p_t} = 0$$

or

$$S_{u_t} = I_{p_t} - S_{p_t} ,$$

which is ordinarily not equal to zero.

A rigorous analysis of the necessary and sufficient conditions for the stability of income over time gives us the following conclusions:

I. *The equality of realized and planned saving is sufficient and necessary for an equilibrium of income over time.*

II. *The equality of realized investment (saving) and planned investment is neither sufficient nor necessary for an equilibrium of income over time.*

III. *The equality of planned saving and planned investment is neither sufficient nor necessary for the equilibrium of income over time.*

IV. *The combination of conditions II and III is sufficient but not necessary for the equilibrium of income over time.*[22]

Since these conclusions may strike the reader as being incorrect, it is suggested that he try out several numerical examples. For this purpose it should be recalled that there are two behavior functions (4) and (7) from which values of C_{r_t} and I_{p_t}, respectively, may be obtained and two additional behavior functions (9) and (10) from which values of C_{m_t} and I_{m_t}, respectively, may be obtained. Limitations of space prevent the use of illustrative examples here.

It should be emphasized that neither (II) nor (III) taken by itself is either sufficient or necessary to achieve equilibrium over time but that the combination of the two is sufficient although not necessary. Conclusion (IV) reduces alge-

[22] Contrast: "The condition of equilibrium requires *both* that intended investment shall be equal to designed saving *and* that actual investment shall be equal to intended investment" (Hansen, "The Robertsonian and Swedish Systems of Period Analysis," *op. cit.*, p. 26). This suggests that the joint condition is necessary, whereas our analysis indicates that it is not necessary.

braically to (I); but if (II) and (III) were revised to state inequalities of equal magnitude, a combination of the revised (II) and (III) would also reduce to (I). Therefore (IV) is merely sufficient and not necessary.

This analysis leads to some important conclusions. The fact that investment plans may be realized is neither an assurance nor a necessary concomitant of income stability (condition II). The same may be said of the fact that investment plans match saving plans (condition III). Income stability may be achieved even if investment plans are not realized. It may also be achieved even if investment plans do not match saving plans, i.e., the compatibility of saving and investment plans is neither sufficient nor necessary for equilibrium of income over time. The compatibility of *production* plans with other plans holds the key to stability.

It is true that income stability will be achieved whenever investment plans are realized and also match saving plans (condition IV), but a stable income may also be attained if these conditions are not met. The realization of saving plans (condition I), however, is both sufficient and necessary to accomplish the stability of income. If saving plans are not realized, income will change. Another way of stating the equilibrium condition is to say that income remains stable whenever the extent of the disappointment of investment plans equals the extent to which those plans fail to match saving plans. This makes it clear once more that the condition for stability is that the realized investment (saving) should equal planned saving, for then planned investment will necessarily be equidistant from both realized investment and planned saving. It does not matter how far off the investment plans are as long as saving plans are realized. Still another way of saying this is that it does not matter for this purpose whether the realized investment of any period was planned or unplanned. As long as total investment matches planned saving, the income of the period will be the same as that of the preceding period. Thus Robertson's first thought was the right one—it is the equality of actual (not planned) investment and planned saving which holds the complete key (both necessary and sufficient) to a stable income.[23]

What is the use, then, of our equations which distinguish planned and unplanned investment? Similarly, do we need equation (6), which gives us unplanned saving? The answer lies in our expectational assumptions. We need this period's unplanned saving and investment to determine the surprises of the period, hence next period's income.

VIII. SAVING AND INVESTMENT AS FUNCTIONS OF INCOME

We may now return to the question whether S_{r_t} and I_{r_t} in equation (2) should be regarded as functions of income, as Klein has emphasized.[24] We cannot, of course, simply add two equations

$$S_{r_t} = h_1(Y_{r_t}) \qquad (2a)$$

$$I_{r_t} = h_2(Y_{r_t}) \ , \qquad (2b)$$

since this evidently would make the system overdetermined in view of the other

[23] Contrast: "So it is equality of *designed* or *intended* 'investment,' not of actual 'investment,' with designed saving that can be regarded as a condition of equilibrium" (D. H. Robertson, *Money* [New York and London: Pitman, 1948], p. 210). Hansen ("The Robertsonian and Swedish Systems of Period Analysis," *op. cit.*) refers to this quotation as stating a necessary but not sufficient condition. According to our analysis, it is neither necessary nor sufficient.

[24] Lawrence R. Klein, *The Keynesian Revolution* (New York: Macmillan, 1947), pp. 110–17. Cf. his "Theories of Effective Demand and Employment," *Journal of Political Economy*, April, 1947, p. 262.

equations of the model which determine values for S_{r_t} and I_{r_t}. The only meaningful way to make S and I functions of income is to assume inventories to be negligible or to define investment to exclude undesired inventory changes, thereby eliminating most of the other equations. In the latter case the equation $S = I$ could be regarded as an "equilibrium condition," in the sense that undesired inventory changes are excluded, as Koopmans has suggested.[25] This would mean that I is defined as planned investment, I_p, and S is presumably defined as realized saving, S_r. The equilibrium condition is then $S_r = I_p$. In other words, $I_u = 0$ is taken as the equilibrium condition. This must be the rationale of Klein's use of $S(Y) = I(Y)$ as an equilibrium condition, for he says that ". . . the rate of change of income varies inversely with unintended inventory accumulation."[26] The condition $I_u = 0$ is not an equilibrium condition, however, in the sense of insuring stability of income over time. It was shown above that income could change, i.e., $Y_{r_t} - Y_{r_{t-1}} \neq 0$ even though $I_{u_t} = 0$. Alternatively, if $S = I$ means $S_p = I_p$, it was shown above that there is no assurance of stability of income over time. Only if $S = I$ means $S_p = I_r$, i.e., $S_u = 0$, do we have stability of income over time. But this condition, $S_p = I_r$ or $S_u = 0$, is derived from our system (eq. [D-2]), and to add it as a separate equation would make the system overdetermined. In short, $S(Y) = I(Y)$ cannot be added to our present model; but this is not to deny that saving, investment, and income are interrelated through the set of equations as a whole.

[25] Tjalling C. Koopmans, "Identification Problems in Economic Model Construction," *Econometrica*, April, 1949, p. 137, n. 9.

[26] *The Keynesian Revolution*, p. 114. Samuelson's approach is similar: ". . . an excess of actual savings-investment over intended investment would tend to make income fall" (Paul A. Samuelson, *Foundations of Economic Analysis* [Cambridge: Harvard University Press, 1947], p. 278).

IX. EXPENDITURE LAG VERSUS OUTPUT LAG

The stability condition derived in Part VII seems to place emphasis on the "expenditure lag" which expresses itself in equations (3) and (4) and tells us how much planned saving we can expect for the current period. (In so far as there is an "income payments lag" it will also be expressed in equation [4], as pointed out earlier, but this does not affect the present point.) If there were no expenditure lag, there could be no discrepancy between realized investment (saving) and planned saving, but neither would there be a link between current and past income. If there is a zero expenditure lag, we can only say that current income is what it is. A zero expenditure lag, and consequent equality of planned saving and realized investment (saving), would not, however, mean stability of income. If $Y_{r_{t-1}}$ in equation (3) were written Y_{r_t}, then S_{p_t} would have to be identical with I_{r_t} in equation (1). Equations (1) and (3) would be one and the same, and we would not be able to compare Y_{r_t} with $Y_{r_{t-1}}$. Thus the stability condition, $S_{r_t} = S_{p_t}$, is operative only as long as there is an expenditure lag.

The statistical findings on the existence of such a lag are inconclusive. Although Metzler's and Tinbergen's studies suggest a close short-run correspondence between current income and current consumer expenditures in the United States, the studies by Duesenberry, Katona, and Modigliani suggest that it would be wise to retain some sort of expenditure lag for the present.

So much for the planned saving component of the stability condition. What of the other component, realized investment (saving)? Granted that the stability condition directs attention to total investment rather than its planned and unplanned components, is it not important to examine the formation of these components on the assumption that the whole grows if its parts grow? In other words, is not the "output lag" important in determining the magnitude of current realized investment, hence the relation between current realized investment (saving) and planned saving, hence the fluctuations of national income? Certainly equation (6) and the planned investment relation (7) and unplanned investment relation (8)—to say nothing of the studies of Metzler and Lundberg—would give the impression that the "output lag" is important. Yet there is the possibility that it is the total of investment that has causal primacy and that the breakdown between planned and unplanned investment is a subsidiary and secondary operation which may be interesting for some purposes but is of no concern for income stability. If we combine equations (6) and (8), we shall have

$$I_{r_t} = C_{m_t} + I_{m_t} - C_{r_t}. \qquad \text{(D-4)}$$

All three terms on the right-hand side are based on data outside the system or pertaining to previous periods through equations (9), (10), and (4), respectively. Thus our suspicions are confirmed. The output lag, i.e., the breakdown between planned and unplanned investment, does not help us to determine the realized investment of the current period. It does not affect the relationship between realized investment (saving) and planned saving and hence does not determine whether income this year is equal to, greater than, or less than last year's. The realized amount of investment depends on the expectations of *producers*, not investors, in relation to decisions of *consumers*. The investors make plans which will determine what component of the produced goods will be classified (if anyone is interested) as "planned" investment. Consumers decide how much they want to consume. All the rest of the goods produced, whether originally designed for investment or consumption, becomes classified as "unplanned" investment. The current "output lag" may then be computed, but its causal significance for the current period's investment and income is nil.

This conclusion is substantiated from another point of view. If we assumed for the moment that the "expenditure lag" and the "income payments lag" were negligible, then income produced would fluctuate with consumption without lead or lag. But since investment is the difference between income and consumption, it too could neither lead nor lag behind income or consumption. Hence the "output lag" could merely determine the internal composition of investment but have no significance for the timing relation of income and investment. If the relation between income and consumption were stable, the relation between income and investment would also have to be stable. If income rises and consumption rises proportionately, investment must also rise proportionately. Any growth of inventories would have to be at the expense of other components of investment. The absence of an "output lag" would affect the composition of realized investment but not the magnitude of investment. This conforms to our earlier analysis, which showed (Part VII) that zero inventory accumulation (therefore zero "output lag") is neither necessary nor sufficient for income stability.

The question of lags is the other side of the question of reaction speeds and unit periods. If we give the period t some definite chronological length, say, three months, we are assuming that a period of three months is representative (or is some sort of average) of the many decision-making components of the economy concerned with consumption, investment, and production. However, if we get to the point of specifying the chronological length of the period, we can make use of statistical studies which will give us the macro-equivalent of the diverse micro-periods. Nor is it necessary to assume that reaction speeds (hence time lags) in consumption, investment, and production decisions are all the same. The consumption lag could be two periods of t length each, the investment lag one such period, the production lag three, or any other combination. However, if we use a lag of more than one period, we may end up with more than one sequence.[27] This complicates the analysis but does not present any insuperable barrier.

X. EQUILIBRIUM VERSUS SEQUENCE VERSUS ECONOMETRIC ANALYSIS

The fact that the Keynesian system is an equilibrium system and the Swedish a nonequilibrium system concerned with cumulative sequences[28] does not mean that the two are incompatible. As in the foregoing model, the two may exist side by side in peace and harmony. In fact, they supplement each other. The Keynesian relationships have been used in many "dynamic" studies (in the Samuelsonian[29] rather than Harrodian[30] sense). In the above model, consumption is dynamized along Robertsonian lines and investment along Swedish lines. At the same time, equilibrium may exist in the Swedish system, as indicated in the foregoing analysis of the conditions for stability. The formal Keynesian system describes a balance of forces in a state of rest, while the Robertsonian and Swedish systems (and less formal aspects of Keynesian analysis) show how these forces react upon one another when they are not in balance. Thus the dilemma posed by Hicks does not exist: "One of the greatest economic questions which remains to be settled is whether the trade cycle is more easily to be explained in terms of mechanical periodicities which can be expressed by difference equations, or whether a temporary equilibrium theory of the Keynesian type is ultimately the more potent."[31] Each approach increases the potency of the other.

It should perhaps be mentioned that the above is a theoretical model and is not amenable to statistical analysis in its present form. The main remaining task would be to state explicitly the assumed nature of the functional relationships. Once these modifications are made in the equations, the model is ready for statistical analysis along econometric lines. Reduced forms can be derived linking current to past magnitudes along the lines of Tinbergen's studies. Thus the proposed model may provide a link between Keynesian equilibrium analysis, Robert-

[27] J. Marschak, "Lectures in Econometrics: Lectures Delivered at the University of Buffalo, March–May, 1948" (mimeographed).

[28] See Sidney D. Merlin, *The Theory of Fluctuations in Contemporary Economic Thought* (New York: Columbia University Press, 1949), pp. 59–120.

[29] Paul A. Samuelson, "Dynamic Process Analysis," in *A Survey of Contemporary Economics*, pp. 352–87, ed. H. S. Ellis (Philadelphia and Toronto: Blakiston, 1948).

[30] R. F. Harrod, *Towards a Dynamic Economics* (London: Macmillan, 1948), "Lecture One" (pp. 1–34).

[31] J. R. Hicks, *Value and Capital* (2d ed.; Oxford: Clarendon Press, 1946), p. 337.

sonian-Swedish sequence analysis, and contemporary econometric analysis.

XI. THE ROLE OF "REALIZED SURPRISE" IN THE FORMATION OF EXPECTATIONS

A major feature of this system is that the income of any period is determined by the degree of "realized" surprise. This is not like Shackle's "potential" surprise,[32] which is a device for describing the structure of existing expectations. We are trying to explain the *formation* of expectations by anchoring our expectations firmly in the surprises of the last period—the actual amounts of unplanned saving and unplanned investment. We assume that these surprises determine our expectations regarding the future, hence our output decisions. Perhaps it would be correct to say that realized surprise is an important determinant of any structure of expectations, whether in the form of a probability distribution or a "potential surprise function." The "realized surprise" thus plays a role in the formation of expectations.

Surprisingly enough, that "prince of expectation merchants,"[33] Hicks, denies the importance of realized magnitudes in decision formation. He says:

> The income *ex post* of any particular week cannot be calculated until the end of the week, and then it involves a comparison between present values and values which belong wholly to the past. On the general principle of "bygones are bygones," it can have no relevance to present decisions. The income which is relevant to conduct must always exclude windfall gains; if they occur, they have to be thought of as raising income for future weeks (by the interest on them) rather than as entering into any effective sort of income for the current week. Theoretical confusion between income *ex post* and *ex ante* corresponds to practical confusion between income and capital.[34]

Here Hicks is confining his attention to the effect of realized surprise of any period on the decisions which took effect during that period. He neglects the effect which such surprise has on the formation of expectations for the decisions to be taken concerning future periods. Granted that current and recent experience should not have a controlling effect on current decisions concerning the future, how can it fail to color expectations in practice? If experience is no guide to conduct, how are expectations formed at all? The economist's injunction to the businessman that "bygones are bygones" means that the businessman should not be *controlled* by the past; it does not mean that he should not allow his past experience to assist him in making decisions. Otherwise there would be no way of selecting any of the myriad universes of possibilities in any situation, as to which are likely to occur and which not; which are ridiculous and which reasonable; which (as a practical matter) should be included and which excluded from the range of possibilities. In other words, we may rephrase the advice to read "bygones are gone but not forgotten; nor should they be." The use to which the "bygones" in the form of "realized surprise" are put in our model is indicated more clearly below.

XII. THE MODEL REARRANGED

Our model is rearranged here to show more conveniently how the "realized surprise" elements are obtained and how they are used. The numbers employed previously are shown on the right. The only change is that derived equation (D-1) is used instead of equation (8).

[32] See G. L. S. Shackle, *Expectation in Economics* (Cambridge: Cambridge University Press, 1949).

[33] To add a second principality to that already conferred on Hicks by Robertson, who called him "prince of liquidity merchants" (D. H. Robertson, "A Revolutionist's Handbook," *Quarterly Journal of Economics*, February, 1950, pp. 1–14).

[34] *Value and Capital*, p. 179.

Determination of National Income

(i) $Y_{r_t} = C_{m_t} + I_{m_t}$ (D-1)

(ii) $C_{m_t} = \phi\,(\bar{S}_{u_{t-1}},\ \bar{I}_{u_{t-1}})$ (9)

(iii) $I_{m_t} = \psi\,(\bar{S}_{u_{t-1}},\ \bar{I}_{u_{t-1}})$ (10)

Determination of Unplanned Investment

(iv) $I_{u_t} = I_{r_t} - I_{p_t}$ (6)

(v) $I_{r_t} = Y_{r_t} - C_{r_t}$ (1)

(vi) $C_{r_t} = f\,(\bar{Y}_{r_{t-1}})$ (4)

(vii) $I_{p_t} = g\,(\bar{S}_{u_{t-1}},\ \bar{I}_{u_{t-1}},\ i_t)$ (7)

Determination of Unplanned Saving

(viii) $S_{u_t} = S_{r_t} - S_{p_t}$ (5)

(ix) $S_{r_t} = I_{r_t}$ (2)

(x) $S_{p_t} = \bar{Y}_{r_{t-1}} - C_{r_t}$ (3)

In our first group of equations we substitute (ii) and (iii) in (i) to obtain Y_{r_t}. We could stop there, since we have attained our main goal, the national income. But this does not give us the magnitudes we need to determine the income of the next period, namely, the "realized surprise" elements, unplanned saving and investment. The next group of equations gives us unplanned investment by substituting (i) and (vi) in (v) and then (v) and (vii) in (iv). The third group of equations gives us unplanned saving by substituting (v) in (ix) and then (x) and (ix) in (viii). This model then determines income from period to period in unending sequence.

XIII. AN ABBREVIATED MODEL

We conclude with an abbreviated model which may prove to be a workable substitute for the ten-equation system presented above. It takes a number of short cuts and streamlines the equations as follows:

(I) $Y_{r_t} = \mu\,(\bar{Y}_{r_{t-1}},\ \bar{I}_{u_{t-1}})$ [mainly combines (i), (ii), and (iii)]

(II) $I_{u_t} = Y_{r_t} - C_{r_t} - I_{p_t}$ [combines (iv) and (v)]

(III) $C_{r_t} = f\,(\bar{Y}_{r_{t-1}})$ (vi)

(IV) $I_{p_t} = \eta\,(\bar{I}_{u_{t-1}},\ i_t)$ [adapted from (vii)]

Unplanned saving does not appear at all, on the assumption that its importance in determining expectations is very small compared with that of unplanned investment. The fact that current unplanned saving provides a means of stating the stability condition does not imply anything whatever regarding the role of past unplanned saving in influencing current expectations and current decisions.

Equation (I) assumes that the output of all goods is determined by expectations whose determining influences are last period's income and the "realized surprise" in the form of unplanned investment. That gives us all we need for the determination of the current national product. For this purpose the usual breakdown of national income into consumption and investment is not required. However, in

order to determine next period's income we need the current period's unplanned investment. Equation (II) defines unplanned investment as total output less consumption less planned investment. Equation (III) determines consumption on the basis of expectations of which the endogenous determinant is last period's income. Equation (IV) determines planned investment on the basis of expectations, of which the endogenous determinant is last period's "realized surprise" in the form of unplanned investment, in relation to the current interest rate. The total of realized investment, if needed for any purpose, can be derived from II and IV. There are four equations and four unknowns.

This simplified model recognizes the fact that the output, hence income, of any period is determined by the expectations of those who make production decisions and not merely by those who make investment or consumption decisions. Even in the limiting case where definite advance orders are given to producers, there is an expectational factor to some extent in the possibility of cancellation. The accumulation of large backlogs of orders also suggests that orders alone are not sufficient to determine the rate of current production; producers' expectations, among other factors, are involved in the decision as to the rate at which to use up the backlog. The investors and consumers are important, however, in determining the extent of the "realized surprise" experienced by the producers, and this in turn influences producers' expectations and decisions for the following period.

THE DOLLAR CRISIS[1]

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DISCUSSIONS of the "dollar shortage" and the "dollar crisis" in the postwar period have employed these terms in a confusing variety of ways. In the immediate postwar period most European countries had a dollar shortage in the sense that they lacked the resources and the industrial capacity for producing sufficient goods and services both for home consumption and for export to enable them to maintain both a politically tolerable level of consumption and a level of investment necessary to achieve viability within a reasonable period in the future. But a country may also have a dollar shortage or crisis not because it lacks resources and productive capacity but because it is unable, for one reason or another, to market sufficient exports to pay for the imports needed to sustain the standard of consumption and investment which it deems vital to its national existence. With the recovery of production in Europe and elsewhere, the dollar shortage has come more and more to be regarded as a matter of markets and of the organization and distribution of resources rather than as a shortage of total resources. It is this type of dollar crisis which Dr. Balogh discusses in his book entitled *The Dollar Crisis*, which was completed, except for his post-devaluation Preface, in the summer of 1949. Balogh regards the 1949 dollar crisis in Britain as a product of domestic and international economic policies, with which his treatise is largely concerned.

Although dollar shortage in the market sense, i.e., the failure of the supply of dollar exchange to equal the potential demand, is still very much in evidence, dollar shortage in the sense of countries not being able to meet their import requirements based on predetermined programs was rapidly disappearing in the first half of 1950, long before the outbreak of the war in Korea. This was evidenced by a sharp fall in the United States export surplus and a sharp rise in the foreign gold and dollar holdings. The rapid shift in the balance of payments of the United States, following close on the heels of a short recession, which, contrary to Balogh, played only a minor role in the dollar crisis in Britain in 1949,[2] came as a distinct surprise to most students of international economics. It would be unfair, therefore, to criticize Balogh's gloomy predictions as to the dollar position of the rest of the world on the basis of the statistical evidence since the spring of 1950. We must, however, take issue with the author's view, which he has been putting forth for many years, that American capitalism must inevitably undergo severe depressions. One gets the impression from many English writers, including Balogh, that full-employment policies are an exclusive monopoly of a few European countries and that economic policy in the United States has advanced little since 1932. Although I should not minimize the importance of economic stability in the United States for world stability, it should be clear that a nation which in recent years has assumed such a large measure of responsibility for the economic welfare of other countries would scarcely again permit a substantial portion of its own people to suffer from unemployment and economic privation or permit its prices to fall to disastrous levels. Short-term price and inventory readjustments are, however, inevitable in a competitive economy (and perhaps in a controlled area as well), and the international economy can and should be in a position to withstand recessions in major countries such as occurred here in 1949.

Much has been written about the failure of the automatic correctives of classical international trade theory to operate under modern conditions,[3] and I do not deny that many nations with inadequate international reserves and

[1] A review note of Thomas Balogh, *The Dollar Crisis* (Oxford: Basil Blackwell, 1949). Pp. xlvi+269.

[2] The speculative reaction to the anticipated devaluation and the rise in imports from the United States during the second and third quarters of 1949 were the more important factors.

[3] See, e.g., my "International Disequilibrium in the Postwar World," *American Economic Review*, XXXIX (1949), 618–43.

a weak trading position may be forced to apply temporary controls on external transactions from time to time. Adjustments to shifts in international demand-and-supply conditions take time if they are to be achieved without harmful effects on the domestic economy. But to conclude, as Balogh does, that, unless provision is made for virtually unlimited international credits, most nations will need to employ trade controls on a permanent basis and to conduct their trade by means of bilateral and discriminatory arrangements is without basis in theory or in fact.

At some risk of violence to Balogh's position, I shall attempt to state his thesis in outline form:

1. The primary objective of economic policy is the maintenance of full employment by measures which do not reduce the real incomes of the lower-income classes.

2. In the modern world, with divergent economic and social policies, this objective can be secured only through the efficient operation of internal and external economic controls.

3. The adjustment of the balance of payments through orthodox methods, such as devaluation or deflation, leads to unemployment and/or social injustice by reducing the real incomes of the poor.

4. Trade liberalization and competition in free markets lead to deflation and unemployment. Thus Balogh rejects the principle of liberalizing intra-European trade so long as the countries of Europe follow divergent economic and social policies.

5. The imbalance between the dollar area and western Europe cannot be removed by price adjustments. It is structural in character and can be eliminated only through investments which restore equality of opportunity between the two continents (p. 87).

6. America's technical progress and high rate of investments make it impossible for the rest of the world to compete successfully with her on a nondiscriminatory basis.

According to Balogh, Britain's 1949 crisis was caused by the American depression, coupled with decontrols in the sterling area. The premium on the pound and the loss of reserves which led to devaluation were largely the result of the failure to control British capital exports and of the loosening-up of import restrictions generally in the sterling area. Balogh also blames those American advocates of devaluation whose real motive was the destruction of the Welfare State in Britain (p. 84). The competitive position of Britain's exports apparently had nothing to do with the deterioration of Britain's balance-of-payments position. Devaluation is simply a tax on the essential imports, which has its principal impact on the poor. Balogh holds that devaluation cannot help exports because of the inelasticity of foreign demand. He states at another point, however, that "the pull of export prices will unquestionably deplete supplies at home" (p. xxviii). But will not devaluation help Britain to compete with America's and other countries' exports in third markets? Balogh's answer to this question is that all the countries outside the dollar area have fewer dollars than they need and that competition for these dollars simply means taking away someone else's dollars. Apparently the idea of Europe's being able to supply goods at lower prices in place of dollar exports is no solution for Balogh, since he believes that somehow there is no substitute for dollar goods. "The return to 'equilibrium' or 'competitive prices' in fact means a struggle forcing all down a deep pit by cumulative deflation" (p. 195). Europe should not compete for a given world market (p. 190) but rather should organize its trade on the basis of reciprocal (bilateral) agreements.

In analyzing Balogh's position, we may start with the proposition that when countries follow monetary and fiscal policies which result in divergent price and income movements, shifts in the balances of payments are likely to occur. This may bring about a fall in demand and a certain amount of unemployment in the country whose trade balance has been affected unfavorably. Compensatory action on the part of the fiscal and monetary authorities would expand domestic demand and employment, but this would very likely increase the trade deficit. At this point the country in question would either need to draw upon its monetary reserves, obtain international credits, or apply import controls. If the imbalance seemed temporary, the country could avoid imposing controls by drawing on reserves; but if the condition appeared to be one of long duration, certain fundamental adjustments would need to be made. While import controls might be imposed temporarily, a policy of rationing imports by means of trade controls for long periods of time would seem far less desirable than raising the prices of imports through devaluation. Balogh rejects devaluation as a solution, on the ground that it is unfair to the poor. It is certainly true that devaluation re-

duces the real incomes of consumers, since it increases the prices of internationally traded goods. But it does not follow that the real incomes of the poor are reduced relative to those of fixed-income receivers. Holding down the prices of essential imports and rationing foreign exchange for all purposes has the effect of increasing the relative real incomes of the poor. But if the state chooses to reduce inequality of incomes, there are better ways of accomplishing this purpose without interfering with free markets.

Perhaps the greatest weakness in Balogh's position is his failure to show exactly how the substitution of import controls and bilateral deals for competitive markets will avoid the fluctuations in output and employment which he deplores. Assuming that a group of countries with "mixed" economies are subject to divergent movements of incomes and prices, is it not possible that trade among them under bilateral arrangements will be just as subject to fluctuations as it would be under unrestricted competition? Countries are not likely to agree to buy from one another more than they need to satisfy the demands of their citizens; and if they make long-term contracts, they will be for the minimum quantities that will be required in any case. In fact, trade conducted under government-sponsored trade and payments agreements may be subject to far greater uncertainties than freely competitive trade will be. An important difference in freely competitive trade, however, lies in the fact that, while total trade might remain constant, certain countries might lose their export markets to other countries. The basis for Balogh's advocacy of the principle of discrimination is his belief that Britain and the countries of western Europe cannot successfully compete against the United States. The idea that American exports have a permanent competitive advantage over European exports is frequently used to justify a system of organized discrimination against dollar goods. The basis of this view is the high rate of American technical progress and capital investment plus the existence of a great internal market for large-scale output. Although I believe that this doctrine can easily be refuted on theoretical grounds, its proponents are in an even weaker position on empirical grounds. In recent years increased productivity in the United States has tended to be accompanied by higher money wages rather than by falling commodity prices; and, assuming a continuation of the present bargaining strength of American labor, this situation is likely to persist. Likewise, farm prices in the United States are tied to a parity relationship with industrial prices and do not, in general, reflect changes in farm productivity. Moreover, rising real incomes in the United States tend to increase the level of imports, so that if some foreign industries suffer from increased American productivity, others will stand to gain.

It might be expected that Balogh's belief that Europe cannot successfully compete with the United States, partly because of the existence of a large single market in this country, would lead him to advocate a free trading area for the nondollar world. But Balogh rejects any attempt to achieve closer European integration through freer trade, on the ground that controls are indispensable to full employment in Britain. Free markets are identified with deflation and unemployment, since they may involve downward adjustments in output for the competing firms. I do not understand a full-employment policy which does not allow for shifts in employment between industries as a result of shifts in demand-and-supply conditions for individual commodities, so long as over-all demand is maintained at a high level. Moreover, as has already been pointed out, the author has failed to show how a system of restrictive trade agreements will avoid the adjustments of output and employment in the export industries which he so greatly fears.

Balogh's longer-run solution to the world's economic ills involves the creation of an international central bank and an international board for economic development. These proposals, while by no means identical, have much in common with the recent report by a group of experts appointed by the United Nations, entitled *National and International Measures for Full Employment*.[4] Balogh's central bank would have unlimited power to create credits to meet balance-of-payments deficits arising out of depressions in surplus countries. The investment board would make grants and loans for developmental purposes to the underdeveloped countries out of capital subscriptions made by the relatively wealthy countries, the amounts of the contributions being related to their levels of income. Although most countries in western Europe would not be eligible for assistance from the investment board, they would benefit indirectly from a larger market for their output,

[4] Published by UN Department of Economic Affairs (Lake Success, N.Y., December, 1949).

since they would be able to earn dollars multilaterally from the underdeveloped areas. One might think that, with a large and stable volume of dollars flowing from the United States to the underdeveloped countries through the international bank and a guaranty against any reduction of dollar availabilities resulting from a depression through the operations of the international central bank, Balogh would permit a return of world-wide multilateralism and competitive trade. But no such hostage to free markets is to be permitted, since, according to Balogh, "bulk purchase agreements which secure guaranteed markets over a long period would in no way be ruled out. Indeed, they might well be concluded under the supervision of the Investment Board prior to the approval of schemes which aim at an extension of primary production. In a world of expanding demand there can be no objection to these agreements as they do not 'discriminate' against anybody. They permit general progress" (p. 173).

I believe that if I had Balogh's faith in the efficiency of controls for achieving the universal good and his hatred of the "system of teeth and claw competition which tries to triumph, not so much through efficiency, as through poverty enforced by unemployment and wage cuts" (p. 173), I should advocate complete governmental ownership and control of the means of production. To my mind, the principal justification for private ownership and control lies in the operation of private initiative to create something new and better and to increase productivity through greater efficiency. It is difficult to see how private ownership contributes to this result without competition. Balogh holds that Europe cannot stand up against American technical progress and efficiency, and yet he is unwilling to give European industry a chance to compete because competition simply spells unemployment.

I do not believe that there is any dichotomy between competition and reasonably high levels of full employment. Nor has Balogh made a convincing case for his theory that the adoption of appropriate exchange rates and other means of increasing a country's competitive position in international markets represents a form of social injustice. In fact, by rejecting competition in international markets, Balogh seems to have forgotten the consumer entirely. Any injustice in the relative distribution of income resulting from devaluation can be corrected through the tax structure. Balogh's real objection to devaluation or to price adjustments achieved through the market is that controls are always better.

DISTRIBUTIVE EFFECTS OF AN EXCISE TAX ON A MONOPOLIST[1]

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ECONOMISTS have argued that an excise tax is shifted in part by the firm to the consumer (or to factors) through price changes—with the degree of shifting depending on the elasticity of the demand (or supply) curve. This analysis is correct, but the emphasis on price effects has led to the neglect of equally important effects on monopolistic profits. The implication, often not intended, which results from this type of analysis is that the greater part of the burden falls on the consumer and that the profit of the seller is either affected slightly or not at all. The present note is intended to show that the effect on the profits of a monopolist is of primary importance, especially in its distributive aspects. The following citations from various writers on the incidence of an excise tax on a monopolist will show the extent to which the emphasis has been on price changes and that the analysis of shifting has been restricted to them.

Marshall's most explicit statement on the case examined here is the following:

> On the other hand a tax proportional either to the amount of his output, or to his gross revenue (that is the amount sold multiplied into the price) would give an inducement to the monopolist to lessen his output and raise his price. For by so doing he would escape a part of the tax: and thus the excess of total receipts over total outlay might probably be increased by a diminution of output, though before the imposition of the tax it would have been lessened. As a consequence of the diminution of his output, he might probably be forced to dismiss some of his employees, and be tempted to lower the wages and salaries of others. In these ways a part of the burden of the tax would be shifted to other shoulders: and, in so far as he diminished his purchases of plant and material, some share of the burden would be diffused over a still wider area.[2]

T. N. Carver perpetuated the restricted definition of shifting: "Therefore, if a monopoly is taxed in proportion to its gross product it will shift the tax, in part at least, by charging higher prices for its product."[3] H. G. Brown also stated that the price rise after a tax shifts part of the tax burden to the consumer. But, although he noted the loss of profits sustained by the monopolist, this aspect was not made an integral part of his analysis of incidence or of distributive effects.[4] These same concepts and definitions used by the above writers are applied by modern authors. In their analysis of incidence they restrict themselves to a comparison of the difference between price after a tax and before the tax with the rate of the tax and do not give adequate attention to other effects of equal importance.[5]

[1] I am indebted to Paul J. Strayer for conversations which clarified some of the problems examined in this note.

[2] *Industry and Trade* (London: Macmillan, 1919), p. 412. A footnote on this page says: "The tax did not give him any new power to gain by raising his charges. It was always open to him to raise his price, to stint his production, and to take advantage of his diminished need for labour to force down wages temporarily at least. He did not take that course, because on the whole he reckoned the price already chosen to be most advantageous to him; and the tax if immovably fixed would have made no alteration in any of the data on which he founded that conclusion."

[3] "The Shifting of Taxes," *Yale Review*, November, 1896, p. 263.

[4] *The Economics of Taxation* (New York: Henry Holt & Co., 1924), pp. 97–132.

[5] See, e.g., O. von Mering, *The Shifting and Incidence of Taxation* (Philadelphia: Blakiston, 1942), pp. 29–30, where no mention is made of the effect of an excise tax on monopoly profits; and H. M. Somers, *Public Finance and National Income* (Philadelphia: Blakiston, 1949), p. 237, in which the effect on profits is treated inadequately.

A more useful approach to this problem requires that the effects of an excise tax other than price effects be emphasized. The following analysis is, therefore, suggested: A tax on the output of a pure monopolist[6] raises marginal costs by the amount of the tax, without an immediate change in marginal revenue (under partial equilibrium assumptions), thus requiring the monopolist to reduce output and raise his price if he is to maximize his profit after the tax (or, if he is to minimize the burden of the tax upon himself).[7] This price rise, as noted above, is usually referred to as the method whereby part of the burden of the tax is shifted to the consumer (or to factors). The extent of the burden so shifted will be determined in the way the usual analysis shows; this is as far as the accepted definition of shifting carries the analysis. However, in addition to the burden on the consumer, partial equilibrium analysis (within whose restricted assumptions most of the previous writers were working) shows that, no matter how great a burden is imposed on the consumer, the monopolist always suffers a reduction of profits equal to the entire tax plus an additional amount. To omit this point tends to minimize the economic effects of such a tax and to ignore the multiple burdens imposed.

The price rise and reduction in output forced by the tax minimizes the loss of profits after the tax, but the remaining loss is still greater than the tax received by the government. Figure 1 illustrates this result. Profit before the tax was the area *ABC* minus fixed costs (which do not change after the tax), and profit after the tax is the area *AED* minus fixed costs; a cut in net profits of *BCDE* is thus sustained. This last area is equal to the tax (*BFDE*) per unit of output q' plus an amount *FCD* which is lost on account of the reduction in output and the elasticity of the demand curve. As is well recognized in the literature, the firm will move back to output q' because, if it tried to maintain the old output, it would lose an additional amount represented by the area *DCG* over and above what it loses in net profits by moving to q'.

It is true, as under the usual analysis and definition of shifting, that consumers remaining in the market pay a higher price

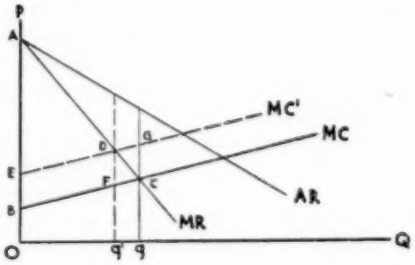

FIG. 1.

and that therefore, on the smaller volume of items sold, the firm recoups a part of the tax. But is this result of primary interest to the firm in view of the fact that the smaller volume of sales forced by the tax reduces net profits by more than the total tax?[8] This absolute reduction in net profits to the firm

[6] Defined, for present purposes, as a producer so far removed from substitutes that he may sustain large profit reductions without there arising any inducement to leave the industry.

[7] The entire analysis is changed, of course, if the monopolist was not previously maximizing profits or does not attempt to do so after the tax.

[8] Some few economists, notably Marshall, have cited this result in a "general equilibrium" analysis of incidence; however, only one statement was found *post hoc* which closely parallels the above analysis under the usual partial approach:

"The word 'shifting' usually refers to the increase of price by which the original payer of the tax attempts to recoup himself. This increase of price is usually accompanied by collateral economic disturbances or dislocations . . . that are quite as important as the mere change in price. For instance, an excise tax (per unit of product) upon a monopoly may raise the price by as much or even more than the tax itself. But the monopolist nevertheless feels the burden of the tax in reduced profits. When we say that a tax is shifted, then, we do not imply that the original payer evades *all* the evil effects of the tax" (R. T. Ely, *Outlines of Economics* [5th ed.; New York: Macmillan Co., 1930], pp. 793–94). I should add only that the monopolist's burden may be greater than the tax, though the consumer has an additional burden imposed upon him, and that the reduction in profits may be more important in its distributive effects.

may be more important in magnitude and general economic repercussions (through investment and incentives) than the burden imposed on the consumers remaining in the market.

The result that a tax raising marginal costs of a pure monopolist is a burden on him in an amount greater than the tax is due in part to the lack of opportunity to raise revenue through a price rise (since he will not voluntarily operate in the inelastic portion of his demand curve; nor can he shift his demand curve to the right merely because of the tax) and in part due to the unprofitableness of shifting resources out of their present use.[9]

There still remains the possibility of recovering lost profits through backward shifting. The fact that the monopolist reduces his output will cause him to restrict his purchase of factors and perhaps substitute some different combination. In any event, he will be able to purchase the smaller quantity of materials and labor at a lower price per unit as long as there is any positive slope to his supply curve. This places some burden upon the factors that now receive a lower income and may become unemployed at least temporarily. This represents an additional burden from the tax but does not relieve the monopolist of a burden greater than the amount of the original tax imposed on him; that is, his profits are still reduced by more than the amount of the tax in spite of the additional burden placed on the factors.[10]

[9] If, contrary to our definition of a pure monopolist, profits after a tax do not remain greater than could be obtained elsewhere, the monopolist has to choose between the capitalization of the tax and acceptance of a permanent loss or closing up shop and leaving the industry entirely. The course followed will depend upon the amount of the profit differential between the monopolized industry and other industries and upon the nature of the costs of the monopolist. If variable costs are large, the possibility of accepting a loss through the process of capitalization will be slight or nonexistent. However, in many cases, the process of withdrawal will be drawn out as the monopolist tries to minimize loss or acts on the hope of improved conditions in the future.

Reduction of the tax burden (in the sense of the monopolist passing on part of his profit loss to factors) will occur *only* if the tax actually *lowers* the supply curves of a factor or of some of the factors. This may occur, but it could be shown only with a dynamic analysis, or at least one employing changing expectations due to circumstances affected by the tax imposition alone. Static analysis does not give an answer to this aspect of the problem.

In conclusion, a tax on the output of a pure monopolist causes him to bear a burden greater than the amount of the tax, to which burden should be attributed the same importance as any of the other economic effects, such as the higher price to remaining consumers or the lower income to factors. *The several economic burdens are a multiple of the amount of the tax*, with the government obtaining only the initial tax revenue; there is no possibility of a monopolist maintaining his profits unless "other things" do not remain the same. But even then the firm is likely to be worse off after the change than it would have been without the tax. All these burdens, including those diffused over firms supplying the taxed industry, may be extremely repressive. It must be emphasized, however, lest the above argument be used against excise taxation, that this partial analysis is inadequate for policy determination, for it abstracts from many other aspects, including the effects of the spending of the tax funds in raising the demand for goods both of the monopolist and of other firms.

[10] The loss of income sustained by the suppliers is not unique upon the imposition of a tax but occurs whenever there is a reduction of output of an industry (cf. n. 2 above). The conditions necessary for factors to escape a reduction of unit receipts after a reduction of the input of the industry employing them are (1) that the same combination of factors proves to be the most efficient after the reduction in output as before—no substitution of factors—and (2) that perfect elasticity of the supply of factors obtains. These conditions are not likely to pertain to factors used by a pure monopolist.

BOOK REVIEWS

The Social Crisis of Our Time. By WILHELM RÖPKE. Chicago: University of Chicago Press, 1950. Pp. 260. $3.50.

This is an ambitious, learned, and thoughtful book concerned with the nature of the post-1914 crisis, its origins in the teachings and practices of the two preceding centuries, and the possible ways of salvaging and rebuilding Western civilization. The crisis itself is viewed as an entity rather than as a mere conjuncture of political, economic, and moral calamities. Emphasis is placed upon the growing proletarization of man. The core of the diagnosis is errors of political and economic theory; that is, excesses of political liberalism of the French Revolutionists' type and of economic liberalism of the Manchester variety, plus the nineteenth century's malignant cult of the colossal. The positive program for reconstruction is essentially one of moral indoctrination and political and economic decentralization. Professor Röpke's attitude toward socialism, "planning," and centralized welfare programs is about the same as that of Hayek, Simons, and Knight, with the chief difference apparently being the emphasis which he places on the roles of peasants and artisans.

Any criticism must be prefaced by the acknowledgment given in my initial sentence. Moreover, it must be accompanied by appreciation of the purely literary difficulties necessarily confronting the author. If analysis is not to fill many volumes (and thus to be read by virtually no one), numerous questions can be discussed only briefly, and conclusions must be apparently drawn upon the basis of inadequate reasoning. Considerable use must be made of generalization. Specific instances cannot be enumerated at length; nor can the social philosopher easily devise a substitute for the statistician's "standard deviation." These difficulties, however, do not fully explain the book's major liabilities, which are dogmatism, dismissal of dissenting opinions without even an accurate presentation of the issues, and use of generalizations which, probably without intent, are likely to confuse a careless or ill-informed reader.

Dogmatism is especially noticeable. Thus on page 200: "We have every right to claim that the principles of our program are both scientific and objective in character . . . all those who have the necessary intelligence, knowledge, and good will will agree on it after some discussion." And in various other places (notably pp. 90, 121–22), phrasing is such as to contrast the author's "calm and balanced opinion" with the "hardly forgivable naïveté" of dissenters.

Perhaps the best example of dismissing an argument without considering the issues is supplied by discussion of the economic-maturity thesis (pp. 138–39). An outstanding example of generalization which may confuse rather than inform is to be found in references to socialism. Early in the book (p. 88) Röpke defines socialism so as to exclude the present British economy and to include only the Soviet Union plus, perhaps, the most highly statized satellites. Yet in various later places (e.g., pp. 103, 156) he refers to "socialist countries" and "all present day socialist states" in such a way that readers may not realize that the phrases merely cover certain Communist-dominated lands.

A high percentage of economists will, of course, differ with many of Röpke's economic and political views. For instance, I believe that the book exaggerates somewhat the distinction between "market" and other varieties of intervention and that it is far too sweeping in its rejection of Keynesian doctrines. As has been stated above, however, all this does not prevent *The Social Crisis of Our Time* from being one of the more learned and thoughtful attempts to explain the economic and political catastrophes of the past few decades. Few economists have either the factual knowledge or the familiarity with related disciplines to match Röpke's contribution.

HENRY M. OLIVER, JR.
Indiana University

Action against Unemployment. Geneva: International Labour Office, 1950. Pp. iv+260. $1.50.

This book includes brief reports on recent unemployment in various countries, a "comparative survey" of unemployment insurance

systems, and (the major portion) descriptions of policies whereby governments may combat unemployment.

The basic premise is "recognition that unemployment and underemployment . . . can be eradicated" and that "concrete programmes of national and international action" are required (p. 224). What then is the position of "private entrepreneurship" in "free market" economies (which apparently include all non-Communist countries)? The "creation of a favourable environment for private investment" is "the first point of attack" on "general unemployment" (p. 66). But if "efforts to revive private investment" fail, governments resort to public works and "measures to maintain and increase" consumption. In "underdeveloped" countries, where difficult "structural" changes are needed, "even in countries where private enterprise is to be the prime mover of industrialisation, the Government still has at least three vitally important functions to perform: namely, to encourage the growth of private enterprise, to guide industrialisation . . . and to supplement private enterprise with public enterprise wherever the supply of the former proves deficient" (p. 151).

The authors hope to overcome doubts which might deter private enterprise (in underdeveloped countries) "from carrying out effectively the role assigned to it" by clear delimitation of the "respective spheres of private and public enterprise" and by convincing "the business community" that "the declared industrial policy will in fact be observed" (p. 150). This hope in view of policies which resemble a probationary reprieve!

On the international level the authors recommend, *inter alia*, "concerted international action . . . aimed at the maintenance of full employment in each country," "schemes for the stabilization of the prices of the world's leading primary commodities,"[1] and "arrangements to ensure that the currencies of the major countries could be made available to the world on a stable basis, regardless of whether these countries were in fact purchasing their usual requirements of imports or not" (pp. 219–20). The United States is thus invited, as a "good citizen of an interdependent world,"[2] to accept novel and far-reaching obligations. It is somewhat reassuring to read that a "permanently satisfactory solution" of "balance of payment difficulties" can be found "only in expanding exports." These "must be sought through technical progress, increased labour efficiency and other means of reducing production costs."[3]

The authors repeatedly refer to the inflationary dangers of full-employment policies, but they do not elaborate on specific measures to reduce costs. That, perhaps, exceeds the compass of a report intended to serve as a basis for international consultations. Essentially the book is a reasoned compendium of *government* "actions." It may therefore be unfair to complain of relative neglect of theoretical backgrounds and of pitfalls and contradictions of the multifarious policies which are outlined.

C. W. Efroymson

Butler University

Making Capitalism Work. By Dexter M. Keezer and Associates. New York: McGraw-Hill Book Co., 1950. Pp. vii+316. $3.50.

The dominant themes of this book are (*a*) that capitalism is the best way of economic life for the United States, because it is productive and conducive to freedom; (*b*) that capitalism is in danger of extinction—or at least of rapid attrition; and (*c*) that capitalism might be saved —and might flourish—if certain policies were sincerely and rigorously applied. A major part of the book is devoted to an exposition of the policies which, in the opinion of the authors, would carry American capitalism to new successes as measured in productivity, stability, and popular acceptance.

Dr. Keezer is director of the department of economics of the McGraw-Hill Publishing Company, and his four associates (William F. Butler, Peter French, Marcia C. Gauger, and Robert P. Ulin) are members of his staff. The book is described in the Preface as an outgrowth of the day-to-day work of this economic research group.

The task the authors have set themselves is clearly an important one—one that unfortunately tends to be neglected by economists in their pursuit of specialisms or in their preoccupation with immediate "spot" problems. If our

[1] P. 220. "to stabilize world aggregate demand *and unemployment*"! (Italics mine.)

[2] J. M. Clark, "National and International Measures for Full Employment," in *Report by a Group of Experts*. (Lake Success: United Nations, December, 1949), p. 103.

[3] P. 185: "as suggested by the Belgian and Danish" governments.

accepted national policy of preserving capitalism and making it work well is to be realized, a substantial portion of the thinking and energies of economists should and must be applied to the problem which has engaged Keezer and his associates.

The book is lucid and straightforward. It tells us what Dexter Keezer and Company would have us do to preserve and strengthen capitalism. In general, these things are: (1) to increase our productivity by making possible a steady flow of funds into investment; (2) to sharpen up our incentives to work, to invest, and to get ahead; (3) to provide enough social security, but not too much or too fast; (4) to stabilize the economy; (5) to maintain more vigorous competition but not attack "bigness as such"; (6) to utilize our natural resources prudently; and (7) to create a favorable political and intellectual climate for capitalism.

Perhaps the most urgent reform proposed is the revision of the tax system. The authors are trenchantly critical of our present taxes on business and on high incomes. They believe that these taxes injure by reducing the amount of funds available for investment, by curtailing incentives to invest and to work, and by weakening competition. When facing the loss of revenue if taxes on business and higher incomes were to be lowered, Keezer and his associates rather blandly point out that the stimulating effect of such changes would raise the national income sufficiently to restore lost revenues.

The section of greatest interest to economists is that on economic stability. The authors believe that the problem ahead is likely to be one of combating inflation rather than deflation but feel that we should be prepared for either contingency. They suggest that it is a responsibility of private business to maintain a steady flow of funds into capital investment, which responsibility they believe business can discharge if suitable tax reforms are enacted and adequate knowledge is available. The authors propose a frontal attack by government on the problem of stabilizing residential construction. They suggest a continuous backlog of planned public works and the stimulation of foreign investment by bold planning in the development of backward foreign areas. They suggest that the Federal Reserve System should be free to regulate credit without any commitment to support the government bond market. They favor the use of government surpluses and deficits; nevertheless, they are wary of deficits because of their possible psychological effect on private investment. They believe that wage increases should be linked to productivity. Finally, they stress the importance of improved forecasting. In this connection, they offer some gratuitous comments on the President's Council of Economic Advisers.

This program for economic stability is, of course, far from novel. Other sections of the book are equally conventional. Nevertheless, in its entirety, the book represents an orderly, systematic, and consistent exposition of policies designed, in the opinion of the authors, to make capitalism work well.

The professional economist may occasionally find fault with a tendency toward sweeping assertions on various subjects (e.g., the effect of taxes on incentives). The authors may perhaps be excused by the fact that the book is intended to be understood by laymen and that it covers too broad a field to permit full documentation and qualification.

HOWARD R. BOWEN

University of Illinois

Steamboats on the Western Rivers. By LOUIS C. HUNTER. Cambridge: Harvard University Press, 1949. Pp. 684. $10.00.

This volume is a model for the writing of economic history. It covers every phase of steamboat navigation on western waters from its introduction in the early nineteenth century down to its final years of adjustment in the twentieth. The work is set in a sound historical background. The traditional account of the "Clermont" on the Hudson and the "New Orleans" on the Ohio, with Robert Fulton as the leading figure, is discarded for a fairer picture, in which John Fitch, John Stevens, and Oliver Evans are given more credit. The importance of the steamboat in western development and the part which the West itself played in shaping steamboat development are made clear, and the role which Henry Shreve played in the story is reduced to its proper proportions. The expansion of the business to include all the navigable streams in the whole Mississippi Basin during the forty years before the Civil War is summarized with sufficient detail to make its significance apparent but without the threshing of old straw.

Hunter follows his historical narrative with the fullest discussion of the structural evolution and mechanical development of the western steamboat that has yet been written. Trial and error as well as tradition slowly determined the

type of engine, the location of paddle wheels, and the structure of the boat itself. River hazards not only helped in this process but soon played their part in the long constitutional struggle over the question of government aid to internal improvements. Accidents from normal hazards and then from risks taken to defeat rival boats became a part of western lore, along with the luxury, gambling, and violence of life on the river.

Hunter has combined all this with a careful study of the organization of passenger and freight traffic and the shifting periods of prosperity and ultimate decline when the railroads entered the field. He has not missed the romantic and picturesque side while offering full details on terminal facilities, through shipments, mail service, and the development of line service. He has somehow managed to produce a volume that satisfies every scholarly requirement and, at the same time, one that makes engrossing reading.

AVERY CRAVEN

University of Chicago

The Corporation in New Jersey: Business and Politics, 1791–1875. By JOHN W. CADMAN, JR. ("Studies in Economic History," published in co-operation with the Committee on Research in Economic History, Social Science Research Council.) Cambridge: Harvard University Press, 1949. Pp. xvii+462. $6.00.

Extensive and careful research characterizes Dr. Cadman's book. He has studied critically a very large number of special acts of incorporation, an almost equally large number of special acts amending corporation charters, numerous regulatory acts generally applicable to corporate activities, and twenty general incorporation laws. His study of this mass of legislation has been supplemented by material gathered from the legislative records and newspapers of the state of New Jersey. A tremendous amount of work must have been put into the preparation of the study. It is an excellent presentation of the early history of the corporation in a state that is important in the industrial development of the nation and in the formulation of our law and policy concerning business corporations.

The book has two major parts. The first consists of a broad, chronological survey of the development of New Jersey's policy through the year 1875. Here the development of public policy in New Jersey is frequently related to what was taking place in other states. This is a difficult task because similar detailed studies for other states are few in number. While such studies are drawn upon, the major means of comparison is a study of the constitutional provisions regulating the corporation policy of the various states.

Part II provides an analysis of the precise terms of the charters granted by New Jersey up to 1875. Here Cadman deals with the nature and scope of businesses operated under the corporate form, the capital structure of corporations, the relations between stockholders and directors, the liability of stockholders and directors, state control, and taxation.

The study of early New Jersey corporations is particularly interesting because the special charter was the customary method of creating and developing corporations until 1875. General laws concerning almost every type of business were enacted prior to that date, but the special acts that the New Jersey legislators were willing to grant to corporators afforded more liberal provisions than those that could be procured under the general laws. The liberal features of the special charters can be seen in the less restrictive clauses relating to over-all debt limitations and in the breadth of powers relating to mortgaging property, floating bonds, issuing stock in exchange for property, holding stock in other corporations, owning real estate, and issuing preferred stock.

Cadman's explanation for the long period of special chartering is twofold. New Jersey sought, through liberal grants to entrepreneurs, to attract capital into the state—chiefly from New York and Philadelphia. There is not much evidence that the state was very successful in this policy, though it may have been, particularly in the railroad industry, for the state lay on the natural north-south pathway of land communication. The political pressure of the railroad monopoly is given as the second reason for the long period of special chartering. Time and again the Democrats procured the passage of general laws. The failure, however, to pass a general railroad law—a failure to be attributed to the railroad monopoly, the joint companies—left the Democratic reformers in a weakened position in their advocacy of a system of general laws. Moreover, the party had difficulty in making its position on general corporation laws effective, since nearly all its legislative members had to sponsor special charter bills on behalf of

constituents and the temptation to trade votes was irresistible. A general railroad law was finally passed in 1873. The constitutional provision against special legislation concerning corporations followed in 1875.

Whatever adverse criticism is to be directed at Cadman's study must be aimed at his handling of the broad sweeps of corporation development. He has presented an immense amount of detail. It is often very difficult to see the woods for the leaves. The book should be regarded as very important source material. It will facilitate the interpretation of the basic forces shaping the development of the business corporation in this country.

G. HEBERTON EVANS, JR.

Johns Hopkins University

The Economics of Pulp and Paper. By JOHN A. GUTHRIE. Pullman, Wash.: State College of Washington Press, 1950. Pp. x + 194. $2.50.

The establishments considered in this case study are engaged primarily in the manufacture and sale of pulp, paper, and paperboard, as distinguished from those converting the paper stock into paper products. American data predominate, with special emphasis on the Pacific Coast. Forty-one tables and eighteen charts present a wealth of statistical material. Much of the cost data was obtained from confidential sources which could not be disclosed.

After a short history of the pulp and paper industry in the United States, consideration is given, in turn, to pulpwood supply, manufacturing processes and production trends, consumption, international trade, marketing and transportation, prices and price policy, labor relations, wage rates and labor costs, pulpwood and wood-pulp costs, regional differences in costs of producing paper, and costs and profits. There are an excellent summary and conclusion.

The author concludes that the location of pulp and paper mills has been determined largely by the availability of raw materials. Most new mills are located near a good supply of softwood pulpwood. The Pacific Coast region has the most plentiful and cheapest pulpwood, with the South next. Labor costs are highest on the Pacific Coast, but over-all costs appear to be lowest there. However, freight rates are higher from the Pacific Coast than from other regions to the principal markets in the East and the Midwest. In general, zone pricing is used, with the sellers absorbing transportation costs; there is little price competition in the industry. The trend of per capita consumption of paper products has been upward, but production capacity has often been excessive. Considerable amounts of wood pulp and of newsprint are normally imported into the United States, which has had these items on the free list since 1913. Yet the domestic pulp and paper industry has been able to pay high wages and to earn reasonable profits. Future expansion in this country is limited principally by the supply of pulpwood. Improved utilization both of mill waste and of different species not now pulped, together with improved conservation and silvicultural practices, seems likely to ease this limitation somewhat.

The author has done an excellent piece of work in collecting and presenting these statistical data. This interesting and well-written book makes a genuine contribution to our knowledge of the pulp and paper industry.

ROBERT H. VAN VOORHIS

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